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# The Physiotherapy Review

Volume XIV Number 4

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# The Physiotherapy Review

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# Address of Welcome to Cleveland

Clarence H. Heyman, M.D.*

It gives me great pleasure to welcome you, members of the American Physiotherapy Association, to Cleveland for your annual meeting. In a representative capacity as secretary of the Cleveland Academy of Medicine I can make this a formal welcome, and do heartily extend it. The office of the Academy, I am sure, will assist your officers and you individually in every way possible to make your stay with us instructive and pleasant.

I would rather, however, make this welcome a more personal one, for the orthopedic surgeon should be more familiar with your work and ideals than the general practitioner. I say I should be, rather than am, for it has been only recently that I realized how much out of touch with you and your organization I really am.

In considering what to say to you I thought it would be a good idea to look over several of the past issues of your official publication, The Physiotherapy Review. Beyond knowing that there is such a publication I knew little about it. I obtained the last two volumes from the medical library expecting to glance through them, and soon became absorbed in the numerous articles of great interest, and was hardly satisfied until I had read most of them. From these volumes I found that there is much for me to learn about physical therapy, and accordingly I immediately wrote to the business office entering my subscription for this journal. I found articles of great merit, very well written, and giving important information which can not be found elsewhere, and which is essential for proper supervision of orthopedic treatment. I learned what your organization stands for, and something about the high ideals of the physical therapy profession as recognized by your association. I congratulate you.

You know, it is the nature of many of us to covet a part of what is good or desirable, particularly after it has been shown that it is desirable. We may have shown no particular interest in the laborious development of an idea or ideals because of a lack of initiative or of vision. I am reminded of younger days at the old fishing ponds. The several kids would throw in their lines haphazardly here and there and then lie down in the shade and wait. Nothing would happen to make an observer believe that these fishermen were alive, when suddenly one of the youngsters would make a catch. Immediately each lifeless form would spring into action to be the first to cast his line as near as possible to the very same spot where the lucky one had succeeded. I feel the same way. I like to take advantage of and have a part in the benefits offered by your association and individual members with whom I come in contact.

It is hardly necessary for me to review the progress of your specialty which received its first general recognition during the late world war. Previous to that time physical therapy, excepting at a comparatively few large orthopedic clinics, was in the hands of poorly trained individuals. Its value in the treatment of post-traumatic conditions was clearly demonstrated to large numbers of physicians in army hospitals. Previous to that time most physicians had been brought up on the doctrine of John Hilton, who in his classic, "Rest and Pain," taught that pain was an indication of treatment by rest. Accordingly, when a painful joint was encountered it was immobilized, thus leading to muscle atrophy, deficient circulation, adhesions, and stiffness. Forgotten was the teaching of that master, Sir James Pagett, who taught that a cold joint should be moved, and that only the joint with local heat should be immobilized. The prosperity of the cults, largely our own fault, is in no small measure due to the failure of members of the medical profession to determine whether a joint should be treated by rest or by movement.

As is so often the case, a new discovery or the development of a new idea leads to over-enthusiasm. The impetus given physical therapy during the war gained such a momentum in the years immediately following that it soon got out of control. This has not been the history of your specialty alone. It is still within the memory of some of us of the wholesale tonsillectomies, for instance, following the development of the nose and throat specialty; or of the innumerable ovarectomies at the beginning of gynecology as a specialty. In the case of physical therapy, large numbers of persons with no particular background took a six weeks course, or, still more intensively attended a week's demonstration of the operation of a diathermy machine to be awed by the phenomenon of coagulation of the white of an egg. Unfortunately for your profession, they then represented themselves as physiotherapists, or as practicing physiotherapy. These hangers on, or parasites, brought nothing but discredit upon the entire profession of medicine. All sorts of lights and electrical apparatus made their appearance with extravagant claims by the manufacturer. Physical therapy departments, so-called, with expensive equipment were set up in hospitals under the supervision of one of these six weeks graduates. Large numbers of physicians, believing themselves to be progressive, but who in reality were only victims of a good salesman, bought equipment. They were working under the de-

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lusion that a stiff joint can be mobilized by shining a light on it, or by turning on the diathermy machine. Unfortunately, no such simple device will work. As *you* know these things are often valuable adjuncts to treatment, but in themselves have little value.

It is needless to continue further along these lines of thought even though we could do so indefinitely. The important thing is to recognize the existence of this quasi-science in order that something may be done to remedy the situation. As I look at it two things are paramount: 1. Properly trained and efficient personnel. 2. Education of the attending physician.

Great strides have already been made by you in the accomplishment of the former. It is not only necessary to have well recognized schools of physical therapy, which we now have, but of equal importance to have an organization such as yours to maintain these standards and to use your influence to see that hospitals are supplied with the personnel who come up to your high standards. It should be made difficult, possibly through cooperation with the American Hospital Association, for any recognized hospital to employ a physical therapist who does not measure up to the standards demanded by your organization. Hospital executives must be informed as to a proper procedure in obtaining a physical therapist who is well trained. In a great many instances he does not know, and qualifications can not be estimated by a mere interview.

The second remedy of the situation, the education of the physician, lies with the medical profession. As the matter now stands it unfortunately must be done chiefly by you through direct contact. You are in an awkward situation when you are carrying out his orders, or filling his prescription, so to speak, when he does not know what to prescribe. A considerable degree of tact is necessary, particularly when dealing with a sensitive doctor, but I know from personal experience that you can do it and at the same time make the doctor believe that the suggestion originated with him. Your personal contacts, of course, are necessarily limited, but until the time comes when medical schools will assume this teaching to students, and visiting physicians will undertake to instruct the intern hospital staff, I see no other way out of it.

This association is doing admirable work, and, of course, I bid you welcome.

# Endocrinology and Physical Therapy

Clifford A. Wright, M.D.*

Since physical therapists are concerned chiefly with non-medical methods of treatment, dealing with conditions involving the bony skeleton and skeletal muscles, they will be particularly interested in the influence of the ductless glands on growth and development. Physical therapy and orthopaedics overlap in such a manner that they cannot be definitely separated. In a careful count of five hundred case histories at the Los Angeles Orthopaedic Hospital it was shown that approximately 30% had an endocrine disturbance worthy of treatment, and in my own histories approximately the same percentage show an orthopaedic condition. Many orthopaedic symptoms are found in ductless gland conditions such as relaxed posture, poor muscle tone, loose joints, and round shoulders. Many destructive bone lesions are due to endocrine dysfunction.

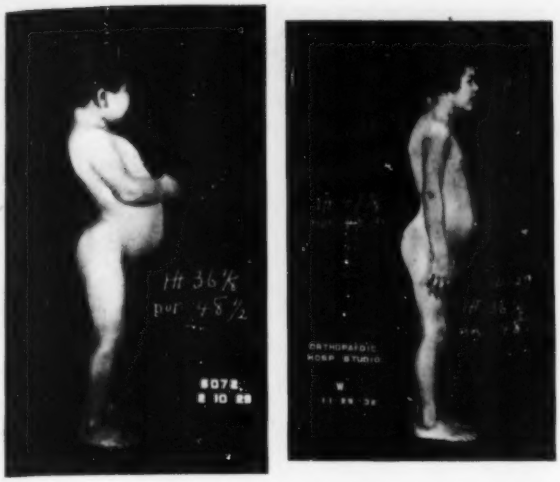
To properly evaluate any abnormality in growth and development, it is necessary to make a study of the normal. Abnormal conditions may be divided into three groups: those showing abnormality in growth and development, those showing destruction of bone, and those involving irregularity of muscle development and action.

It is important to know that while growth and development go hand in hand, they are distinct from each other. A tadpole may develop into a frog but not grow properly in size. After a frog's thyroid gland has been removed it will fail to metamorphose but may grow considerably in length. When both the anterior pituitary and thyroid glands are removed it neither metamorphoses nor grows. In the human, development is exemplified in the appearance of the bony nucleii, particularly those of the wrist, ankles, etc.; some of the phenomena of puberty particularly the appearance of secondary sex characters and in boys the proper development and descent of the testicles, while growth is more concerned with the usual symmetrical increase in size. We know that the average baby should weigh seven and a half to eight pounds at birth; the head should be thirteen and a half inches in circumference in girls, and fourteen in boys; that babies should get their first teeth at four to six months and both the deciduous and permanent teeth should erupt at a definite time; and that the fontanelles should close at the usual time.

The average child gains five pounds per year until he is nine or ten years of age, and then ten pounds per year. Children grow approximately two inches per year during the growing period; however this varies at different times and in some individuals. Generally speaking a child of ten should measure approximately fifty-two inches and at fifteen years sixty-two inches. Growth continues in the girl until eighteen years and the boy until the age of twenty-one. The appearance of the bony nucleii as an index to development, and metabolism is usually sought in the wrist and ankle, where taking the wrist for example, there are no bones at birth. At from six months to one year two carpal nucleii appear which gradually develop. During the second year the distal end of the radius is seen and thereafter one carpal nucleus appears for each year up to seven. The pisiform or eighth bone usually is seen at from nine to eleven. A detailed account of bony development in different locations can be found by reference to any good work.[1, 2]

Lack of proper development of the bones of the joints is sometimes accountable for loose joints and it is easy to see that improper development of the ankle and foot bones may be one cause of flat-foot. Body proportions are very definite, a baby being born with the body in proportion to the legs as five is to three. This gradually lengthens until at eleven or twelve the lower length from the pubic bone to the floor should equal that

*Member of Medical Staff, Los Angeles Orthopaedic Hospital, Physician to Psychoendocrine Clinic, Los Angeles General Hospital.



*Illus. 1 (a) Cretin at 8 years of age; Ht. 36⅛"; Normal Ht. 48½";*
*(b) After 3 years, 7 months treatment with thyroid and antuitrin; Ht. 47⅝"; Normal Ht. 55.9".*

from the pubic bone to the top of the head, and the span should equal the height.

Any marked irregularity in development and growth presents an abnormality, and while we cannot ignore the influence of growth determinators handed down from generations of ancestors, any marked changes, particularly those inconsistent with the family history, usually indicate some irregularity in the physiology of the endocrine glands.

Those glands most concerned with development and growth are the thyroid and pituitary glands primarily, and secondarily the sex glands. adrenals, and possibly the thymus gland.[3] The thyroid gland secretion is necessary for the proper development of every body cell and it is not only concerned in growth but in developmental processes. A tadpole fed thyroid gland product will change into a frog in five days,[4] a procedure which would require eight to ten weeks naturally. In one species this reaction is shown in as weak a solution of thyroxin as one to twenty million. Marked underactivity of the thyroid, either congenital or occurring early in life, causes marked interference with the development and growth of the individual and symptoms pointing to all body systems. That type of thyroid insufficiency which is congenital is known as cretinism. A cretin fails to develop mentally and physically.

The pituitary gland has a very interesting and complicated physiology for it is composed of four lobes, each having definite activity. The anterior lobe alone is supposed by some to furnish from seven to nine hormones or fractions, each with a definite physiological reaction. We are interested here particularly in the growth hormone, and secondarily the factors involving sexual development and the appearance of the secondary sex characters. Other things being equal, the height of an individual is a distinct indication of the activity of the growth hormone of the anterior lobe of the hypophysis.

The sex glands influence growth secondarily and in an entirely different way from the two already mentioned. In underactivity of the sex glands beginning early we have delayed epiphyseal union allowing a longer time during which the individual may grow. Consequently we have the long-legged and long-armed man or woman with long lower length as compared to upper length who is classified as the eunuchoid type.

Without going more definitely into detail regarding the physiology of the different glands it may be interesting to take up some of the symptoms representing abnormality in the influence of the growth and development factors beginning first with dwarfism. Dwarfism is lack of proper growth and arbitrarily the upper limit of height in an adult is estimated at fifty-nine inches. However this lack of growth is quite apparent even in infancy and during the entire growth period. There are several types of dwarfs. Some of these may be mentioned here:

1. Cretinous
2. Hypophyseal
3. Achondroplastic
4. Rachitic
5. Nutritional.

*Illus. 2 (a) Wrist of patient Illus. 1; at 8 years showing wrist development usually seen at six months.*

*(b) Wrist same patient five years later showing presence of all carpal bones and the epiphyses of the metacarpals.*

Other classes such as asexual, deformed, infantile, etc., are used by some writers.

1. Cretinism (Illus. 1 & 2) is due to congenital absence or severe underactivity of the thyroid gland. These individuals fail to develop properly mentally or physically. They are short and the lower extremities frequently show lack of development; however, some have comparatively normal proportions. The faces are thick and heavy; tongues large and usually protruding. They have the so-called pot belly with dry skin and appendages. From an orthopaedic standpoint the posture is poor, with loose joints, round shoulders, lordosis, frequently scoliosis, and always poor muscle tone. Of outstanding diagnostic importance is the delayed carpal development seen in these individuals. Lack of tarsal development in cretins causes flatfoot.

*Illus. 3 Typical hypophyseal dwarf.*

2. The above type is readily distinguished from the one classified as hypophyseal infantilism or pituitary dwarfism (Illus. 3) due to insufficiency involving the anterior lobe of the pituitary gland. These patients are miniatures of the normal, are well proportioned, and usually mentally alert. They do not show the dryness of the skin and appendages, or lack of normal wrist development except when there is an associated secondary hypothyroidism. As this type of individual grows older marked lack of development of the genitalia of both sexes is present. This is more apparent in the male, and in the female there is interference with the menstrual function. I have seen three adults of this type—twenty, forty and forty years old, respectively, who had never menstruated.

*Illus. 4 Typical achondroplastic dwarf.*

3. Achondroplastic dwarfism (Illus. 4) is the so-called circus type of dwarf and is similar to the achondroplastic dwarf gods of ancient Egypt. There is marked interference with growth influencing the bony skeleton, but not involving the soft tissue in the same proportion. There is even an apparent overgrowth of the skin which hangs somewhat in folds. These individuals have very heavy bellied muscles and are capable of unusual athletic feats. The body is long in comparison with the legs, and most of the growth occurs in the torso. The upper arm and leg are quite short and there is marked bowing of the lower leg due to the fibula growing longer than the tibia. There is precocious sexual development and sexual activity and while this latter feature is probably an endocrine characteristic, it is not at all sure that this type of dwarfism is caused by abnormal function of any of the ductless glands. Here the X-rays usually show a deformed skull, not small, in fact frequently larger than the expected normal with marked retraction at the base. The sella turcica is undersized and in some instances cannot be identified. The carpal development is markedly retarded. Jansen of Holland[3] in a comprehensive brochure has described a fascinating theory that this type of dwarfism is caused by amnion pressure at about the sixth week of embryonal life.

*Illus. 5 Rachitic type; 9 years of age; note deformities.*

4. Rickets (Illus. 5) due to a destruction in the epiphyses is frequently a cause of dwarfism, and while these patients may be fairly well proportioned they usually show very marked deformities with bowing of the legs, curvature of the spine, large head, and other evidence of destructive bone changes. X-rays show broadening of the epiphyses with irregularities and haziness at the epiphyseal lines. The disease shows a marked tendency to attack the ends of the long bones and X-rays show deformities of the long bones. Here also we see no definite mental disturbance.

5. While the nutritional type (Illus. 6) is closely related to No. 4, we see lack of growth from malnutrition and inanition without the characteristic findings of rickets. These children of whom we have seen several at the Los Angeles

*Illus. 6 Nutritional dwarf.*

Orthopaedic Hospital, show marked evidence of their lack of proper food. They are not robust; their muscle tone is poor; abdomen is usually large and distended; legs and arms small and poorly muscled; and they give a characteristic history of lack of proper nourishment. Those we have seen have been quite alert.

Regarding the treatment and training of these different types from the standpoint of the physical therapist, the following general principles may be stated:

The cretins will usually not understand instructions. They are sluggish in every respect and have very poor muscle tone. Nothing could be accomplished with physical therapy in the absence of the required medical treatment with thyroid and anterior pituitary and unless treatment is started quite early, very little may be accomplished in any event.

In the second type, hypophyseal dwarfism, the musculature is in proportion to the size of the individual; the posture is not necessarily more apt to be faulty than it is in a normal individual. These patients are alert and could be given the usual physical training. From a medical standpoint treatment is directed at supplying an active growth hormone in an effort to stimulate growth. The results have been somewhat irregular differing with different individuals and with different products used. Just recently one of my patients of this type has grown two and a half inches in four months and another three and three-quarters inches in a year on treatment with antuitrin.

In the achondroplastic dwarfs certain postural changes are characteristic due to bone deformities and heavy musculature. There is marked deformity of the pelvis with large muscular hips and compensatory lordosis. A kyphosis in the upper part of the spine is the usual finding. Physical therapy may be of advantage in these cases. Little has been accomplished by treatment in regard to the growth of these patients. It is hoped that when more active growth hormones are available that growth may be stimulated.

In the rachitic dwarf it is quite essential to treat the rickets when it develops and in this way prevent dwarfism. After deformities have occurred orthopaedic measures may be necessary and physical therapy may accomplish a great deal. One interesting rachitic dwarf grew four inches in eight months on pituitary therapy.

Nutritional dwarfs are usually in poor shape physically with lack of proper muscle tone. Their training and physical education must be designed to meet their condition.

As has been stated above, lack of proper growth can be frequently diagnosed quite early and it is of particular importance that treatment for dwarfism be started as early as possible. In this respect physical therapists may be of considerable assistance.

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# Uncompensated Thoracic Lordosis

Gertrude Hawley*

During the physical examinations of women students, an interesting case of scoliosis was referred to the writer for treatment by exercise. The individual was a young woman eighteen years of age, who has an unusually erect, though somewhat stiff, carriage (Fig. 3). Her gait lacks springiness, and examination disclosed some right thoracic and left lumbar scoliosis, with a high right shoulder and prominent hip causing the lateral lumbar curve, or "waist triangle" of Steindler (1), on that side to be more acute. In the right thoracic region the ribs at the costal angles formed a prominent ridge. The ventral surface of the thorax showed a deep depression on the right side, immediately lateral to the sternum and extending approximately from the first to the fifth costal cartilages and ribs. It measured about 1cm in depth, 7½cm in transverse diameter, and 11cm vertically. It is shown very inadequately in Fig. 1 except in outline.

The spines of the thoracic vertebrae were not normally prominent, and the scapulae lay flat against the thorax with their vertebral borders parallel to the spinal column and about 5cm from it, but the interscapular region was deeply depressed, making the vertebral borders very prominent. At first it was thought that these depressions were due to atrophy of the rhomboid muscles, but in gymnastic movements requiring contraction of these muscles, they seemed to have unusual power.

A lateral X-ray of the trunk shows that the bodies of the vertebrae have a normal outline throughout the spinal column, but that they are aligned so as to form a slight lordosis in the region of the second to fifth thoracic vertebrae. The lumber lordosis is less than usual, but there is no reversal of the normal curve in this region. This seems to exclude the case from the "flat back" cases described by Schede (2), Steindler (1), Heuer (3), and others. These cases always seem to have had a compensatory kyphosis. That this young woman has probably never had any such condition is borne out by the high school records which show that, during her freshman year, she had an increased lumbar lordosis. It is unlikely that she ever had the condition mentioned by Schede as "Sitz-buckel" if she had developed lumbar lordosis by fourteen.

At present the health of the young woman is good. She has no ridges on her teeth suggestive of rickets. She has occasional colds which are always located in her chest, and had influenza once or twice during the last ten years. She is underweight as compared to the average, but this may have little significance since the hereditary build is that of extreme slenderness, as indicated by the measurements in the table and especially in Fig. 3.

*From the Department of Physical Education for Women, Stanford University.

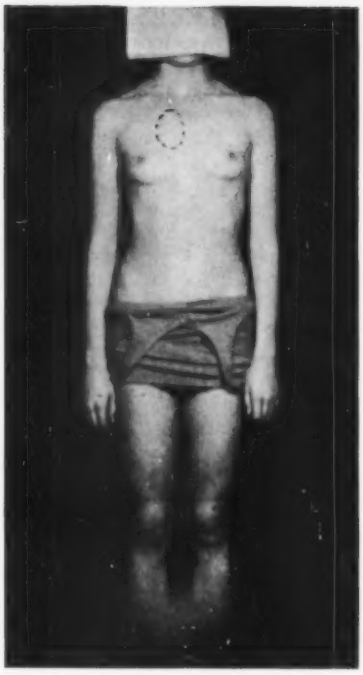

*Fig.* 1

All the members of the family consider themselves healthy, but one sister who was unable to attend college for a year and a half, because of ill health. It probably is significant that, during the last year, the subject of this study had to drop out of college field hockey because of pain in her back and side attributed to weak trunk muscles. This muscular weakness may possibly have been of long standing, and may be related to the deformities. However, an exact analysis of the forces which have produced the deformities seems out of the question without detailed knowledge of the relative strengths of opposing muscle groups.

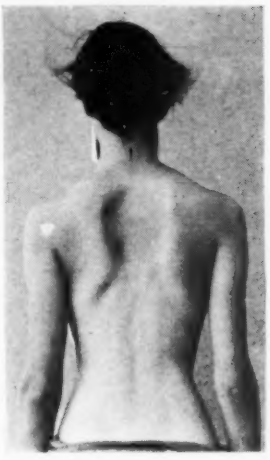

*Fig.* 2

It seems to be the consensus of opinion that the persistence of the prenatal curvature with the subsequent development of a compensatory lordosis in the thoracic region, is due to rickets. Although this case differs from those cited in the literature, an effort was made to discover whether rickets was the cause of the spinal and chest deformities found in this young woman. According to Dr. R. R. Newell, Professor of Radiology in our Medical School, the X-ray shows no signs of rickets in the spine, thorax, or extremities. The bodies of the thoracic vertebrae concerned are of uniform height, ventrally and dorsally, but the intervertebral disks are somewhat higher ventrally.

An interview with the young woman's mother disclosed that she was an unusually healthy baby although she had not cut any teeth until one and a half years. This seems to have been characteristic of all of her sisters and brother, of whom there are four, and is a family trait. She was ambidextrous during infancy, developed decided left-handedness during early childhood, but overcame the

TABLE I

Physical Measurements of the Subject, her Sisters, and Brother.

| | The Subj. | Sister | Sister | Sister | Brother |
|---|---|---|---|---|---|
| Age (when measured) | 17 yrs. 8 mos. | 20 yrs. 0 mo. | 18 yrs. 3 mos. | 15 yrs. 1 mo. | 9 yrs. 1 mo. |
| Weight | 49.7 kg | 40.4 kg | 57.1 kg | 48.4 kg | 24.3 kg |
| Height standing | 169.9 cm | 165.2 cm | 175.5 cm | 163.7 cm | 126.2 cm |
| Height sitting | 89.0 | 88.4 | 92.8 | 85.7 | 67.1 |
| Ratio height sitting to standing | 52% | 53% | 53% | 53% | 53% |
| Girth of waist | 56.4 | 54.4 | 58.7 | 57.3 | 49.0 |
| Girth of chest at axilla height | 74.5 | 75.8 | 80.3 | 73.0 | 57.0 |
| Girth of chest at 9th rib | 67.8 | 66.1 | 70.4 | 61.5 | 51.9 |
| Depth of chest at xiphoid-sternal junction | 13.2 | 15.0 | 17.3 | 16.1 | 13.4 |
| Breadth of chest at axilla | 23.4 | 24.1 | 27.7 | 23.7 | 18.9 |
| Breadth of shoulders | 36.0 | 35.6 | 38.1 | 35.9 | 27.8 |
| Length of rt. leg | 90.2 | 92.5 | ..... | 87.2 | 67.4 |
| Length of l. leg (fr. ant. sup. iliac sp. to int. mal.) | 90.0 | 92.7 | ..... | 87.2 | 67.4 |
| Length of rt. forearm | 24.7 | 24.9 | 27.2 | 25.5 | 19.9 |
| Length of rt. upper arm | 36.3 | 35.0 | 36.4 | 35.6 | 27.5 |
| Length of l. forearm | 24.9 | 25.2 | 26.7 | 25.2 | 20.4 |
| Length of l. upper arm | 36.2 | 34.8 | 37.3 | 35.6 | 28.0 |
| Head Measurements— | | | | | |
| Bifrontal | 11.6 | 11.9 | 12.1 | 12.0 | 11.8 |
| Bitemporal | 12.8 | 11.8 | 12.8 | 11.8 | 11.2 |
| Mentalis to nasale | 10.5 | 10.7 | 10.9 | 10.8 | 9.4 |
| Mentalis to hair line | 17.5 | 16.8 | 18.5 | 17.2 | 10.4 |
| Nasal spine to nasale | 4.5 | 4.1 | 4.6 | 4.5 | 3.8 |
| Remarks | R. dor. L. lum *Scoliosis* | Normal Sag. curves | Normal Sag. curves | *Thoracic Col.* flatter than average | Normal Sag. curves |
| | *Thoracic Col.* lordotic | *Jaws* being widened | | *Chest*-sternum prom. at level of 3d cost. cart. | R. dor. L. lum *Scoliosis* |
| | Mkd. asymmetry of *chest* w. deep depression on R. side | | | *Jaws* being widened | |

*Fig.* 3

latter somewhat when she learned to write in school. She now uses her right hand for writing but does many things such as playing tennis with her left. She had no serious illnesses during infancy, was very independent and early learned to imitate her older sisters in doing physical stunts and the like. She is said to have had no digestive troubles to speak of, and at the present time has no idiosyncracies of diet.

Her mother can remember no peculiarities in the use of her arms and legs, and, during infancy, she slept alternately on both sides. Up to six years of age, she went barefoot and since then there seems to have been no consistency in the way in which her shoes become worn except for the usual scuffing of both heels at the dorso-lateral margins. She states that she remembers "sitting crooked" during her late grammar school and early high school years. This, however would not seem to account for the asymmetries found, since she was thirteen or fourteen years of age at the time. At nine years she had measles, and when about twelve years old she was very susceptible to colds and had a serious case of influenza. At fourteen she had a strange digestive upset which was never accounted for, since she had eaten only what the rest of the family had had and none were made ill except herself. It has been suggested that this illness might have been a mild attack of infantile paralysis, but according to Dr. E. W. Schultz of this University, the test for immunity to poliomyelitis was negative. Her mother says that she was inclined to lift and carry things that were too heavy for her, but this could hardly have caused the marked deformities of the chest and spine. Also, without a history of rickets, it seems unlikely that childhood habits such as "sitting crooked" mentioned above could cause these conditions.

In comparing the physical measurements of all the children of this family, a marked family resemblance exists. (See Table 1.) Physically they seem to resemble their mother much more than their father. The mother is of medium height, asthenic build, and has an unusually flat upper back and erect carriage in general. The father, on the other hand, is thin, round shouldered, and of medium height.

In conclusion, the most that I feel justified in saying to account for the unusual anatomical conditions found in this case, is that the young woman probably inherited an asthenic tendency which may account for the asymmetries of the chest and the scoliosis. Rickets in mild form may have existed during early childhood, aggravating the abnormal conditions resulting from asthenia. The reversal of the normal saggital curve in the thoracic region must remain unexplained, since there can be no question that she was born with the usual thoracic curvature, and nothing that is known of her habits and history offers a satisfactory explanation of its reversal.

I wish to express my appreciation of the support of the Department of Anatomy and for the criticism and suggestions of Professors Dyment, Danforth, and Meyer.

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# Suggestions on the Problems of Body Mechanics

Esther A. Gilman*

I am assuming that we all interpret the meaning of "Body Mechanics" in its broader meaning as described by the White House Conference on Child Health, namely —"Body Mechanics is the mechanical correlation of the various systems of the body with special reference to the skeletal, muscular, visceral and neurological systems. We have normal body mechanics when this mechanical correlation is most favorable to the function of these systems."

Therefore in attempting any preventive, educational, or corrective program in the solution of the many problems that arise relative to body mechanics, I would first call to your attention the necessity of a complete and clear understanding of the individual as a whole, a definite record of the case so that we may formulate to some extent what we may hope to accomplish for the individual. It is very unsatisfactory to have a child or adult referred for "posture exercises" unless we have a definite diagnosis of presence or absence of possible congenital or organic structural deformities which will make it impossible for excellent results. It would be ideal if the attending physician could have X-rays, especially of the spine. This gives the only authentic information on the actual position, size, shape, etc., of the various parts of the bony skeleton. Of course the usual information as to presence of disease, infection, condition of the heart, eyes, ears, estimate of individual's capacity for strenuous or mild program, should be obtained from the physician. With reference to fatigue, tension, and habits, information concerning environmental and

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psychological factors which might have influenced the case can best be obtained through personal study and observation of the patient over a period of time. With this information we can then go ahead and ascertain through examination and measurements facts which shed further light on anatomical type of structure, whether of the tall type with long narrow trunk, long bones, slender muscles and very flexible, or intermediate type, or the stocky type—each prone to characteristic problems and of which we should be fully aware.

A knowledge of habits is important. It is necessary to know in what way the body is habitually used in standing, sitting, resting, and in activity. This involves the usual examination of body alignment with reference to relation of various segments of the body to each other and to the center of gravity or balance. Also how the functions of the various systems of the body, their efficiency and comfort are affected by the alignment and habitual use of the body.

Is the weight of the trunk mostly on the bodies of vertebrae and intervertebral discs or thrown too much on the articular facets, etc.? Is the weight carried through the center of joints or is there uneven distribution to one side of the joint, stretching some muscles, allowing others to relax or limiting the normal range of motion and thereby causing tension, fatigue and susceptibility to joint strain? Is the diaphragm limited in its normal function by position of, and the flexibility of the bony framework to which it is attached?

One could go on at much length, and should, when a new case comes up for examination.

It is readily seen by what I have said concerning thorough understanding of any case that the next step is to remove all causes possible. The physician may have already made suggestions but if not, suggestions for the regulation of and proper diet suitable to the individual, regulation of rest, regulation of type and amount of activity in play or work, may be some of the most essential points of your program. Many times the best opportunities for such suggestions arise during the treatment period. Be awake to these opportunities.

Give the individual an intelligent understanding of his faulty postural patterns. This is by no means an easy assignment. We often think our patient or student understands perfectly what it is all about, when in truth very little has been comprehended. Posters, charts, and short and simple references for reading often help. Or a posture picture or silhouetteograph shows more to the individual than explanation can reveal.

Help each to develop good postural habits by repeating only desirable ones frequently until these postural reflexes become habitual. Any suggestions you can make which will influence your patient to carry over the principles you teach during the lesson will build to this end. Impress again and again on the individual that the real benefit received from the program comes from maintaining the desirable postural reflexes throughout the daily activities of work, play or rest. Maybe the individual (adult or child) has a hobby. Use this as point of attack if possible by showing how good postural habits may make for a more enjoyable golf game, better base ball, better horseback rider, etc. The desire for relief from fatigue or strain may be a good way to reach others as most of you very well know. Or since most individuals want a well developed, flexible, poised body, use this as a point to get their attention. In other words, secure more than passing interest if you would have your program effective.

At the same time keep clearly in mind that the aim should be to use to best advantage the structure, the neuromuscular skills, and the capacities that the individual is already endowed with. Secure as good balance and control for that type of body build as is possible. Strive not to make all attain a perfect standard—there is no standard. Do not expect the same amount or same speed of response to your efforts in each case. Each is individual.

I have already intimated that exercises of various types play an important part in the treatment of postural defects. These must be adapted to the individual physically, psychologically, intellectually and educationally. They must gain flexibility if there is limitation in joint action; gain relief from tension if there is muscle spasm; gain development of weak muscles for balance of muscle power or for increased strength; train or develop neuro-muscular pathways; and develop certain controls if the individual is to improve and maintain a well balanced body alignment and desirable body mechanics.

They must also be of the type, or given in such a way, that the individual will be stimulated and encouraged. There may be an inferiority complex to overcome.

The program must reach the intelligence of the individual if interest is to be aroused and sufficient stimulus given so that the individual will carry on. Such a program will be educational by teaching the individual how the body is built, how it works, and the benefits derived from mechanical efficiency.

When this mechanical efficiency is once attained, I believe to be maintained, the individual should be brought back at stated intervals for short periods of further practice and observation. Probably once or twice a year. Skills developed in any physical activity as sports, dancing, or in art or music are maintained only through continued practice. I would emphasize this particularly for the growing child. Only by some such procedure will treatment in body mechanics prove of lasting benefit.

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### EXERCISES IN THE LYING POSITION

*Abdominal Retraction.*

Starting position: Hook lying (on back—knees bent) on mat—arms at side.

Exercise: Tip the pelvic girdle by contracting the gluteal and lower abdominal muscles. Hold—relax. For modification increase tipping and lift hips from mat. This control must be developed independent of breathing. For progression—give in supine lying, table, sitting and standing positions.

Object: This exercise develops control of pelvis, lumbar spine and lower abdominal wall.

*Scissors.*

Follow abdominal retraction with an exercise in which this control must be maintained during the exercise.

Starting position: Lying on side, neck, trunk and legs in extension—under arm extended and supporting head while upper arm is bent and finger tips rest on mat about eight inches in front of forehead.

Exercise: 1. Alternate leg swinging rhythmically back and forth from the hips. Avoid tension. Roll forward—relax—repeat on other side. 2. If this is too strenuous use alternate leg raising in same position for several lessons.

Object: This exercise affords excellent practice for pelvic, lower back and abdominal control and for relaxation of certain parts of the body during activity. It is classed as a general exercise with particular benefit for lower back and lateral trunk muscles.

*Knee Circling.*

In regard to abdominal strengthening exercises avoid double leg raising or lowering. There is too much strain involved. Alternate leg raising and lowering with pelvic and abdominal control is good. Or knee circling for a more vigorous one.

Starting position: Back hook lying—hip grasp or neck grasp.

Exercise: Drop knees to right—circle up right across to left and around to continue right, etc., 3-5 times. Relax—repeat it.

### Exercises in Sitting Position

*Spine Stretching.*

Sitting on mat, legs crossed, or stall bar bench. Arms relaxed at sides.

Exercise: Stretch up the back of the neck, trying to touch an imaginary object while the head is held back with chin horizontal. Localize in the upper dorsal and cervical regions. Avoid hunching shoulders or tensing anterior neck muscles.

Object: If done correctly it will bring cervical and upper dorsal spine into good alignment with rest of back.

Progression: Give in lying position combined with abdominal retraction and in standing position.

*Danish Shoulder Exercise.*

Starting position: Sitting on mat or stall bar bench. Forearms crossed in front of chest.

Exercise: 1. Pull elbows backward, keeping them shoulder height.

2. Drop arms in front—elbows extended. Hands crossed at wrists.

3. Fling arms diagonally upward to stretched position above head.

4. Return to starting position.

Object: Affords practice for control of pelvis, lower back, shoulders and head during exercise. Developmental exercise for shoulder adductors.

*Shoulder Retraction.*

Starting position: Sitting—mat or stall bar bench or standing. Arms relaxed at sides.

Exercise: Draw shoulder blades down and together and flatten against rib cage.

Object: To develop control for the superimposed shoulder girdle. If position and control of the spine and shoulder girdles are desirable and efficient the position of the chest and rib cage will be properly aligned to allow diaphragm full excursion and to allow the muscles of respiration and abdomen to work efficiently.

### Exercises in Standing Position

After gaining control in lying and sitting positions progress to exercises in the standing position. To help the individual judge for himself whether he has good alignment in standing some of the following may be helpful. Use a plumb line and mark with eyebrow pencil the points through which the line should fall.

1. Leg and Foot Alignment (Lowman).

Anterior superior spine ilium (approximately). Middle of patella, middle of ankle joint, between first and second toes.

Weight should be on the center of each foot, equally distributed between the two feet. Feet a few inches apart. Grip with feet to use muscles of sole of foot.

2. Alignment of Body from Side (Lowman).

Drop plumb line to front of outer malleolus, back of patella, middle great trochanter, middle of tip of shoulder, lobe of ear.

Flexibility exercises may be necessary before some of the above mentioned controls can be obtained in good positions.

### Conclusion

1. Have a clear and definite understanding of the case.
2. Remove causes as far as possible.
3. Develop interest on the part of each individual to carry over desirable body mechanics into their daily habits.
4. Insist on follow-up work at stated intervals, especially for the growing child.

# Treatment Technique with the Inductotherm

John R. Merriman, M.D., Harold J. Holmquest, B.S. (M.E.)
and Stafford L. Osborne, B.P.E.

The recent development of a new high frequency generator called the "Inductotherm" has introduced a new method of heating body tissues. In a recent article (1) we discussed the physical aspect of this device and, therefore, will confine this discussion chiefly to the technic of application. The heating of the tissues is produced by electromagnetic induction and no metal contact electrodes are used as in diathermy. The current is conducted through a flexible, heavily insulated cable, which is wound around or about the part to be treated. This cable may also be wound into a pancake type of coil and placed over the tissues where heat is needed.

The remarkable simplicity of application and ease of operation give the Inductotherm a place of distinction in the field of high frequency generators.

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Merriman and Osborne (2) state that patients having a great deal of subcutaneous fat did not tolerate massive doses of diathermy as well as patients having a minimum of adipose tissue. Neymann et al (3) made a similar observation. They also found that the obese patient was somewhat more comfortable when the application was made by means of an alternating electric field. In a recent article (1) we have discussed the probable reason for these particular reactions.

It has been shown that for the maximal rate of heat generation in an electrolyte a definite relationship exists between the conductivity of the electrolyte, the dielectric constant of the electrolyte, and the frequency of the current. To obtain maximal rate of heating in an electrolyte having the conductivity of physiologic salt solution, by applying the high frequency current directly as in diathermy or by means of an electric field, it would

*Fig. 1. Illustrating the use of a Pancake Coil, in this case applied to the lower back. The patient should be seated on a wooden chair. A stool was used in this case and towels omitted for the better illustration of the technic employed.*

be necessary to employ a tremendously high frequency, so high in fact as to be impractical.

All tissues do not have the same electrical conductivities. Physiologic saline solution has the electrical conductivity of blood plasma. As we decrease the concentration, we obtain solutions which correspond in electrical conductivity with less conductive materials such as blood, muscular tissue and so on, until we obtain a concentration electrically comparable to adipose tissue.

It is quite obvious from an inspection of our experimental data and heating curves previously reported, (1) that the Inductotherm alone, of the three means of heating tissue by high frequency current, heats electrolytes in direct proportion to their electrical conductivities and hence will produce maximal rate of heating in the most conductive tissues. The most conductive tissues are the most vascular tissues. In our opinion it is desirable to produce maximal heat, at the maximal rate in the vascular tissues rather than in the adipose tissues. The production of excessive heat in the underlying fatty tissues during the administration of high frequency currents by the usual methods is an important cause, in our opinion, of the discomfort experienced by many patients. The Inductotherm, which generates heat in tissues in direct proportion to their conductivities, provides a means for the more comfortable treatment of patients having an unusually large amount of subcutaneous fat.

Through the courtesy of the General Electric X-Ray Corporation, the Inductotherm has been used by us in animal experimentation and in the actual treatment of patients.

In all, 150 local treatments were given for arthritic joints, and in many cases several joints were treated simultaneously. In addition twenty hyperpyrexia treatments were administered.

The following are technics which we have used satisfactorily in actual practice. The flexibility of the Inductotherm permits physicians to devise other technics which may be equally effective and better adapted to the particular requirements of the patient.

INDUCTOTHERM OPERATION FOR LOCAL TREATMENT.

1. Intensity switch was placed at "1."
2. Main switch was turned on.
3. Intensity switch was gradually raised until the patient felt a definite warmth.
4. In forming the various coils, the three turns were kept close together.
5. The formed coil closely approximated the part to be treated.
6. Application was given approximately twenty minutes.
7. In case the patient complained of uncomfortable heating, one or all of following procedures alleviated the discomfort:
   (1) Reduction of intensity setting.
   (2) Readjustment of coil.
   (3) Separation of coil from part treated by the insertion of an additional towel.

Contraindications.

These were the usual ones for any high frequency application.

Foot

A. Patient sitting on wooden chair.

*Fig. 2. Illustrating the use of a Coil around the part to be treated. The usual towel between skin and coil was omitted for the purposes of photography.*

*Fig. 3. Illustrating the use of a Single Loop.*

(Pancake coil technic). Fig. 1.

1. The longer cable was wound into a pancake coil of three turns, and
2. Placed on floor with rubber sheet between coil and floor.
3. Foot was placed on pancake coil with folded towel under foot.
4. Cable connected to proper terminals.
5. Inductotherm operation as described above.

B. Patient lying on bed or treatment table.

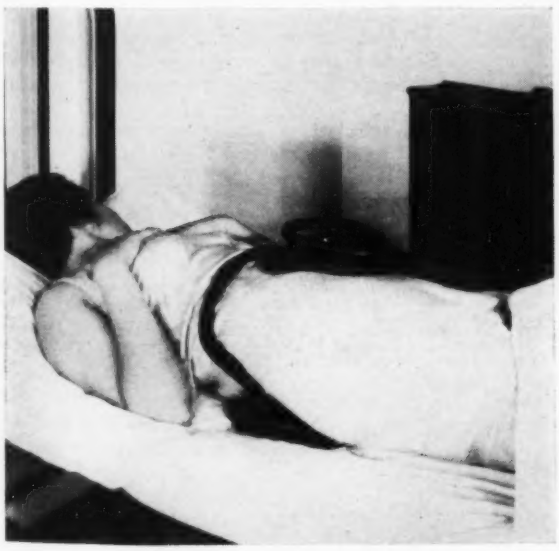

*Fig. 4. Illustrating the use of a Double Coil. (Note both coils must be wound in same direction.)*

Pancake coil technic, Fig. 1, was used. Coil was held in place with sandbags.

Ankle (Coil technic). Fig. 2.

1. Patient was seated in wooden chair and towel placed around ankle.
2. Three turns of cable were wound close together around ankle.
3. Cable was connected to proper terminals.
4. Inductotherm operation as described above.

Lower Leg (Lower loop technic). Fig. 3.

1. Longer cable was formed into a single loop.
2. Patient's leg was placed between sides of loop as shown in illustration Fig. 3, with folded towels between cable and leg.
3. Cable was connected to proper terminals.
4. Inductotherm operation as described above.

Knee (Coil technic). Fig. 2.

1. Patient was sitting or lying with towel placed around knee.
2. Three turns of cable were wound around knee, so as to include the joint. Coil in Fig. 2 is placed too high for the knee joint proper.
3. Cable was connected to proper terminals.

*Fig. 5. Illustrating the technic of Electropyrexia. (Note trough between the two halves of upper mattress.)*

4. Inductotherm operation as described above.

Hip (Pancake coil technic). Fig. 1.

1. Patient was lying or placed in any convenient position and a pancake coil of three turns was applied to the area.
2. A folded towel was placed between coil and part to be treated.
3. Cable was connected to proper terminals.
4. Inductotherm operation as described above.

Pelvis (Double coil technic). Fig. 4.

1. Patient lying and folded towels applied to sacrum and lower quadrants of abdomen.
2. Two coils of three turns each were applied as illustrated in Fig. 4. *It is imperative that both coils be wound in the same direction.*
3. Cable was connected to proper terminals.
4. Inductotherm operation as described above.

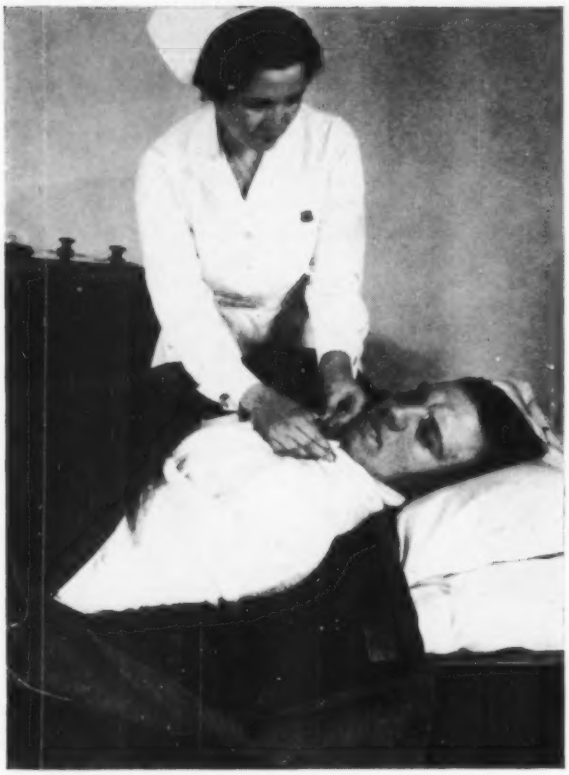

*Fig. 6. Illustrating the proper arrangement of terry cloth about patient's neck to prevent heat loss.*

Lower Back (Pancake coil technic). Fig. 1.

A. Patient sitting in wooden chair.
   1. Pancake coil of three turns was applied to region to be treated with a folded towel between skin and coil.
   2. Cable was connected to proper terminals.
   3. Inductotherm operation as described above.

B. Patient lying prone or supine.
(Pancake coil technic as above.)

Chest (Pancake coil technic). Fig. 1.
   1. Patient lying supine with folded towel placed over area to be treated.
   2. Pancake coil of three turns was applied.
   3. Cable was connected to proper terminals.
   4. Inductotherm operation as described above.

Shoulder (Pancake coil technic). Fig. 1.
   1. With patient sitting, a folded towel was applied over area to be treated.
   2. Pancake coil of three turns was applied.
   3. Cable was connected to proper terminals.
   4. Inductotherm operation as described above.

Arm (Single loop technic). Fig. 3.
As described under "Lower Leg."

Elbow (Coil technic). Fig. 2.
   1. With patient sitting, folded towel was placed around elbow.
   2. Three turns of cable were wound around the elbow.
   3. Cable was connected to proper terminals.
   4. Inductotherm operation as described above.

Hand and Lower Arm

A. Pancake coil technic as described under "Foot." Fig. 1.

B. 1. Single loop technic. A loop was formed as described under "Leg" and "Arm." Fig. 3.
   2. Single loop technic.
      (a) Patient grasped far side of loop and rested forearm or wrist on near side of loop.

Sinuses (Pancake coil technic). Fig. 1.
   1. Pancake coil of three turns was applied over region to be treated with folded towel between coil and skin.
   2. Cable was connected to proper terminals.
   3. Inductotherm operation as described above.

Electropyrexia. Fig. 5 and Fig. 6.
   1. Two half mattresses were placed on top of regular mattress.
   2. Enough space was allowed between the two halves so that the lower part of the cable coiled around the treatment bag fitted into this groove.
   3. Treatment bag was prepared for patient with rubber sheet under terry cloth.
   4. Patient was wrapped in terry cloth and rubber sheet. Terry cloth was wrapped closely around neck as shown in Fig. 6.
   5. When treatment bag was closed three turns of the longer cable were wound around the bag rather snugly as illustrated in Fig. 5. The coils were kept close together.
   6. The cable ends were connected to the proper terminals.
   7. The intensity switch was placed at "1" and the main switch turned on.
   8. The intensity switch was raised to "16"; the intensity was reduced as necessary. Settings varied with patients, and are dependent on:
      (a) Rate of temperature rise.
      (b) Comfort of patient.
   9. A clinical thermometer was used for recording rectal temperature while the machine was being used.
   10. An electrical thermometer was used after the desired temperature had been obtained and the Inductotherm turned off.

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# Care of Infantile Paralysis

Leonard D. Frescoln, M.D.*

Acute Anterior Poliomyelitis is no new disease; a so-called "Medical" Papyrus of the Egyptians portrays a patient with the right lower extremity wasted and with the foot in equino-cavus. It certainly is suggestive of the results of this disease. When Von Heine in 1840 described the disease it was with the background of modern medicine; and yet our knowledge of its very etiology is far from satisfactory. Despite Rosenau's and Flexner's investigations with the possible infective agents, little is known definitely as to its cause and method of spreading. The anterior horn cells are affected, and some think the lymph system is made to bear the brunt of the disease.

We do know that in a general way it resembles a general infective process. This gives us clues as to its management. Young people especially are warned against congregating together when the disease is prevalent. It has been found that those who have had their tonsils and adenoids removed seem less susceptible, as also those who are in good general physical condition, perhaps athletic, though the disease is no respecter of persons. Perhaps those not habitually constipated and those of more even tempered nervous mechanism are not so easily attacked. It sometimes seems, moreover, that those who have survived many infections have a greater resisting power in general than have others.

In the last outbreak, early diagnosis and prompt treatment have been the means of attaining better results on the whole than in former years. It is strange how an epidemic of a certain disease will travel across the country while other diseases, met more frequently in the past, have become rather rare. For obvious reasons typhoid, tuberculosis, smallpox, malaria, etc., have subsided, while heart disease, nervous affections, malignancy seem, if anything, on the increase. Fortunate is the case in which the virus has entered in attenuated form or small quantity, and where it is recognized at the beginning and the proper treatment is instituted.

Let us take a case in a small child with malaise, and perhaps vomiting or other gastro-intestinal disturbance, some soreness and rigidity of the neck, and sore extremities, running a moderate fever and listless. It may be there is a convulsion or hyper excitability, and the developing of definite tenderness along the nerve-trunks; followed in a few days by paralysis of a part. But with the rise in temperature, and especially in view of the fact there are other cases about, the child should have been kept in bed, the various passages cleaned out and treatment for fever instituted. For the painful extremities a cradle for the bed-clothes should be used, and a pillow placed at the soles to prevent foot dropping, or an upper extremity should be kept up relaxed on a pillow. It may be spinal puncture has given a clue and from this angle treatment instituted. Serum from a recent convalescent or whole blood has been tried, but perhaps some of these forms of treating this disease are more successful in the monkey than in the human.

Heat may be applied early in the disease, and after the pain has gone, gentle massage. It may be that lying quiet on the abdomen with some mild form of evaporating lotion would be helpful very early. Certainly, as weakness is noticed in a part, that part should be relaxed, as by the use of posterior moulded plaster splint (or full cast if necessary) carefully applied for weak tibialis anterior, holding the foot at right-angle to leg, splint back of knee for weak quadriceps, etc. If merely middle deltoid and supraspinatus are involved, have "air-plane" splint, holding arm abducted horizontally; if biceps is involved, flex to right-angle at elbow; if external rotators are also involved (infraspinatus and teres minor), externally rotate arm; if extensors of wrist and fingers are involved (posterior interosseous nerve supply), extend these parts. In instituting baking and massage, it is well to give it in the ordinary electric baker fifteen or twenty minutes every day followed by effleurage for about ten minutes. Be careful not to burn or hurt these patients. Later on, as power returns, three times a week will be sufficient, unless power is being lost. Keep on until cured, or until no improvement results. Do likewise with the splints or light braces. There is said to be no hope for further improvement after two years in this matter of treatment. Occasionally it is well to institute some gentle bending at the joints as there may develop some stiffness. It is encouraging to patient and attendant alike to watch improvement. Cases may be given exercises in warm salt pools until strength is regained.

There were collected some three hundred and fifty cases from recent years' records, and they showed the various stages of the disease and various deformities. One is impressed with the need of frequent checking-up to see that the case is getting proper treatment, splints not broken or rubbing, and general good health kept up. A few cases had to be handled in a Respirator when respiratory muscles were involved. Chest, abdominal and back muscles must not be neglected for fear of scoliosis, etc., developing. As for deformities and weaknesses that have remained, the proper braces, some with ring locks, equinus-stops, cross foot-elastics, pelvic bands, raised shoes, back braces, crutches, etc., as the particular case demand, are used. Also where indicated, subastragalar arthrodesis, mid-tarsal section, tenotomies, tendon lengthening, plantar fasciotomy, back-knee operation or also operation to correct back-knee, spinal manipulations and operations for curvature, etc., are all to be considered for the welfare of the patient.

In conclusion the following points have come emphatically to our attention in watching these cases:

1. Try to make an early diagnosis or be suspicious of the occurrence of this disease.
2. Keep at rest from start, and eliminate as far as possible the likelihood of extension.
3. Use appropriate splints, and physical therapy in proper time—persistently.
4. Encourage and follow up scrupulously, remembering not to lose the present chance of helping.
5. When all ordinary improvement has been accomplished, use proper braces and the necessary operations.

*Philadelphia, Pa.

# Orthopedic Examinations in the Detroit Public Schools

Vaughn A. Blanchard*

One of the four basic objectives of the health and physical education department of the Detroit Public Schools is stated as follows:

> To correct in so far as possible, existing physical defects and to stimulate a desire on the part of the child to conserve health thus gained.

Consonant with the philosophy underlying this objective, a comprehensive program of orthopedic examinations, corrective exercises, referrals, and follow-up was launched about ten years ago. This program reached its peak in 1928 with the publication of a Manual of Orthopedics for the teachers in the health education department. At that time there were fifteen "district supervisors" serving in the elementary schools and one or more assigned to each junior and senior high school. A word of explanation is necessary here relative to "district supervisors." Detroit's 190 elementary schools are, for administrative purposes, divided into fifteen districts, each district having from twelve to fifteen elementary schools with gymnasiums and a staff of from one to five health education teachers. It was the duty of the "district supervisors" to conduct examinations for physical defects in each of her schools, make referrals to the properly designated physician or clinic, and to outline corrective exercises for those children with minor defects who were not classified as referrals. Such exercises as were outlined were conducted by the regular health education teacher under the guidance and direction of the supervisors and as an integral part of the class work. Beyond her duties as a helping teacher in this corrective program she followed up referral cases in the homes of those children with major defects.

The work of the supervisor in the secondary schools approximated that of the elementary teacher, but here the corrective exercises were given in a specially equipped orthopedic room. A supervisor directed this program as well as that of the elementary "district supervisor."

The qualifications for members of the supervisors' division were either:

1. Graduation from a hospital, university, college, or school of physical education having an accepted course in orthopedics.
2. Graduation from a university, college, or school of physical education plus credit for training and experience at an accepted hospital or clinic.

As indicated above, the work of such teachers fell naturally into two divisions, namely, reference cases and cases for corrective work within the school. Reference cases include:

1. Structural scoliosis
2. Congenital deformities
3. Spastic, obstetrical, infantile paralysis, defects due to trauma, bone or joint disease, or deformity
4. Resistive posture cases
5. Transitional or functional scoliosis cases when found in elementary schools
6. Fallen arches, weak, painful, and flat feet when found in elementary schools.

All other cases were classified for corrective exercises within the school.

Was such a program, as briefly outlined above, successful and was it meaningful as far as the health and physical welfare of school children was concerned? Annual reports were made each year which would lead one not only to answer in the affirmative but to recognize the crying need for an expansion of the work and a continued study and analysis of ways and means of bettering it. The last year before curtailment for economic reasons became an absolute necessity, 1928-1929, 170,000 elementary school children were given a snap diagnosis by the regular health education teacher after having been instructed in this procedure by the "district supervisors." Of this number 35,712 were chosen by the regular teacher as being in need of help. These 35,712 were reexamined by the orthopedic specialists and 27,584 children were recommended for special exercises during the regular exercise program, and 1,783 were referred to family physicians and to clinics.

In the junior high schools 12,760 children were examined, 2,546 were given special exercises in the schools, and 657 were referred to family physicians and clinics.

In the high schools 10,836 were examined, 2,063 were given exercises in the schools and 907 were referred to family physicians and clinics.

Totals show that 193,596 children were examined, 32,193 given exercises in the schools, and 3,347 referred to physicians and clinics.

During that year and for four years later the work was further strengthened and better integrated with the remedial work done by the Board of Health through the appointment of a half-time orthopedic surgeon who acted as a consultant on cases which presented difficulties to the supervisors. This surgeon was engaged by the Board of Health but worked under the general direction of both the Board of Health and the Board of Education. This appointment insured more careful diagnosis and at the same time relieved the school supervisor of some of the professional responsibilities which she had had to assume in the past, responsibilities which rightfully should be assumed by the medical profession.

It has probably been painfully evident to you up to this point in this discussion that the speaker has had recourse to the past tense. If you haven't been cognizant of this the speaker certainly has! The reason for having treated this subject historically thus far is due to the powerful significance of the years 1929-1930. The cataclysmic significance of these years hardly need be mentioned. Reorganization, readjustment, and curtailment became the watchword in school systems as well as in business, industry, and other professions, perhaps even among physicians and physical therapists! School systems were carefully scrutinized and subjected to the searchlights of efficiency experts and financial experts. Teacher-pupil ratio became one of the bases upon which

*Director of Health Education, Detroit Public Schools.

a reorganization must be effected. This ratio rose from one to thirty; to one to thirty-five; to one to forty and more. Fifteen of the supervisors in Detroit were not meeting any classes. I refer here to the "district supervisors." Secondary school supervisors had a class load of about twenty. The administration recognized very keenly the worth of this job they were doing. There never has been any question of that but nevertheless as an emergency measure the elementary school supervisor went into regular health and physical education teaching to be followed shortly by most of the teachers in the secondary schools. Some of you will doubtless feel that this was the wrong place in which to make curtailments particularly in view of the figures quoted above. There were, however, two factors to be considered since some loss in teacher personnel was inevitable. First, if the orthopedic program were retained in its entirety, could there be any readjustment made to offset the loss which must of necessity occur in the general program? Second, if the orthopedic program in its original form were temporarily discontinued as an economic necessity and the basic work of the general health and physical education program were to be maintained over a longer period, could a reorganization of the orthopedic work be effected that would maintain its most salient features? Sitting on the horns of this dilemma it became necessary to re-evaluate both the general program and the special program.

Certain questions immediately came to mind as to the actual efficacy of the orthopedic work in the Detroit schools. There seemed to be a reasonable doubt as to just how much was accomplished through segregation of orthopedic cases for special corrective exercises within regular classes in the elementary schools. If you will recall the figures quoted above, in the school year 1928-1929, 27,584 children were selected for special exercises during their regular gymnasium class period. When asking ourselves whether or not these boys and girls received more good from this type of activity than they would have received in a well rounded, comprehensive, and general program of health and physical education activities and more good proportionate to the time devoted to them by special teachers, frankly there was a reasonable question of doubt in our minds. As I make this statement I fully realize that in a physical therapy meeting it may be considered "lese majeste," but as to whether or not a few minutes of special exercises taken each day by children during a period when they had much rather be participating in activities with their fellows are of more value than actual participation in such activities I have no criterion.

In the secondary schools with a fully equipped orthopedic room and with a supervisor in constant attendance there seemed less doubt and it is for that reason that the program has continued longer in this division of the school system.

There never has been any doubt as to the value of and necessity for a continuation of the referral work, and this salient feature of the orthopedic program has been maintained and since most clouds have a silver lining, has been probably more comprehensive and genuinely efficient than formerly.

With the loss of the orthopedic specialist it seemed that the most constructive method of facing the issue was to insure the vital interest of five hundred odd health and physical education teachers in the orthopedic status of 240,000 children, if we could not have our forty or fifty specialists doing the job, emphasis to be placed on referring handicapped children directly to their family physician. This procedure necessitated two things. First, a properly qualified person to conduct an intensive teacher training program, and second, an organization plan that would function. The person, Miss Helen King, doctors' assistant in corrective and remedial gymnastics, was forthcoming, loaned to the Board of Education first by the Sigma Gamma Clinic and then by the Visiting Nurses' Association. Her first year was spent in the elementary schools, for curtailment was effected here first. Using the district organization, preliminary meetings were held for all health and physical education teachers. These meetings were of an informal nature with ample opportunity for questions and discussion. Teachers were familiarized with terminology and with the most common orthopedic defects both through the lecture method and very excellent lantern slides. These preliminary meetings were then followed with a second series using smaller groups and bringing in children with various orthopedic defects as typical of what the teacher might be expected to find in her examinations. These meetings were in the nature of a clinic and gave teachers, already equipped with a theoretical knowledge of defects, a practical working basis upon which to conduct their examinations.

The second year of this program has been concentrated in those secondary schools which are without special supervisors. The same technique has been employed but with smaller groups since the work has been done for the most part in individual schools. Miss King has continued the work in the elementary schools acting in an advisory capacity, on call to help in particularly difficult situations.

The third year of this reorganized program of orthopedics will begin next fall with Miss King conducting a general clinic at the opening of school for all teachers needing further help. She will be on call to help again in the more difficult border line cases, and will further supplement the whole program by conducting a class for prospective health and physical education teachers graduating from the School of Education of Wayne University. This will insure teachers coming into the system of being acquainted with the program as it now operates and of being capable of carrying it on without interruption.

It will be obvious to you that one very vital part of this new program has not been mentioned yet, namely, the follow up. In this the co-operation of the school nurses has been secured. Cases of referral are given to the supervising nurse of the Board of Health as are any other cases of physical defects. The nurses deal with the orthopedic defects in their regular routine of home visits. This falls short of being one hundred percent due to a lack of a sufficient number of school nurses but it approximates the follow up of cases formerly done by the orthopedic specialist.

To summarize briefly. The original orthopedic program in the Detroit public schools called for four major functions of the orthopedist:

1. Examination
2. Referral of cases
3. Supervision of corrective exercises
4. Follow up

The present program calls for two major functions of the general health and physical education teacher:

1. Examination
2. Referral of cases

# The Physiotherapy Review

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To
THE OLD EXECUTIVE COMMITTEE
*Thanks and Farewell*
To
THE NEW EXECUTIVE COMMITTEE
*Greetings and Good Luck*

## The Convention

That thirteen is a lucky number, was definitely proved by the success of the thirteenth annual convention of the American Physiotherapy Association held in Cleveland. From the opening of the first business meeting on Wednesday morning, on through the meetings and programs and social events, to the end of the business meeting on Saturday, the four days were crowded with all the better things one hopes for in conventions. The variety in the entire program was one of the big attractions.

The word "convention" often brings to the naive mind the picture of a round of dry lectures and equally dry business. Not so this convention! As a matter of fact, those who have attended conventions in the past—conventions of various sorts—will usually admit that an American Physiotherapy Association convention is not only educational and enlightening, but refreshing. When the last of farewells are waved from the windows of departing cars and taxicabs, the departing guests draw a sigh, not of relief, but of satisfaction.

We pay our respects to Cleveland Chapter, our Hostess, for the efficiency it exhibited in not only taking care of the guests, but likewise making them comfortable. Our Cleveland members have the happy faculty of making themselves real hostesses.

### BUSINESS

It is impossible to give detailed account of the business meetings, for the reporter's minutes take up some two hundred and fifty typewritten pages. But the four meetings were interesting and busy.

The entire first morning was taken up by the reports which appear in this issue of the Review. The greater part of the remaining time was occupied by the reading and discussing of the proposed new constitution. There were animated debates concerning some points—debates which demonstrated the fact that members are interested in the welfare of the Association. With a few changes from the printed form sent out to each member, the constitution and by-laws were passed, and now become the law of the Association. There will be printed copies available sometime in the future.

The other point of important business was the election of officers and a board of directors. The new slate appears in the usual place on the inside front cover of the Review. The officers are now on the west coast, and the members of the board of directors are scattered.

A new chapter, Central New York, has been admitted to the Association. This makes eighteen chapters in all.

### LECTURES AND CLINICS

We shall not try to tell all about the papers read at the different meetings. Some of these papers, those we were able to get at once, appear in this issue and the others, which will be available later, will appear during the next few months. Suffice it to say, they were worthwhile discussions. You will want to read each paper as it appears. We hope especially you will not fail to read Dr. Heyman's address of welcome for it was a welcome in truth.

For Thursday afternoon, the program committee had arranged a clinic at Rainbow Hospital, a division of Lakeside Hospital. Here Dr. Maxwell Harbin told something of the plan of the hospital and showed a number of interesting cases. The hospital is for children under ten years of age, and the average period of hospitalization is about one hundred and twenty days. Patients come from all parts of the country and the state. All types of cases are taken, except open or pulmonary T. B., but the largest percentage of cases are polio, bone and joint osteochondritis, and spastic. There are very few cases of rickets, however, probably due to active campaigning during recent years to prevent this disease. Osteochondritis, Dr. Harbin stated, is not an inflamatory, but a growth disease—which may occur in any of the growth centers, not only in the epiphysis. The primary type occurs before puberty, the secondary at puberty, and in girls the disease is of greater incidence in the spine, while in the boys it is in the hip. Dr. Harbin felt that many persistent round shoulders are associated with primary spinal osteochondritis. He showed some nine or ten cases of different types of disease.

Thursday evening we were both instructed and entertained at the Nela Park Laboratories of the General Electric Company. The institution, which is quite extensive, is a sort of magic land of electrical wonders. Dr. Luckiesh and Mr. Holmquest explained a little about some of the things they are doing in the laboratory. Mr. Holmquest has promised his paper for publication.

Dr. Wallace Duncan's talk on Low Back Disability, the following day, was one which we are looking forward to having in the Review. He has promised to have it for us, and Miss Wetterhuss has promised to get it. With the two promises, we surely shall not miss the paper. On the same afternoon, Miss Esther Gilman of Ohio State University, talked on that ever important question of posture, and Mr. Vaughn Blanchard of De-

troit, told about the health and corrective program in the public schools of Detroit. Both papers are in this issue.

ENTERTAINMENT

However interested one may be in physical therapy, and however in earnest concerning the profession, there are yet times and places for fun. It started on Wednesday afternoon when a goodly number of people assembled in the Empire room of the Cleveland Hotel for the superficial purpose of drinking tea, but really for the purpose of meeting old friends and making new ones. The tea—coffee for those who preferred it—was good, as were the dainty sandwiches which went with the tea—and coffee. It was noted that some guests returned to the flower and sandwich and samovar-laden table a number of times, and it was likewise noted that by six o'clock the table was not so laden. Yet the tea was only a minor point in that afternoon. East met West, and Mid-West was there, too. One could even hear the "dialects" as the chatting crowd forgot its company reserve, and just chatted.

During the afternoon some doctors dropped in for a cup of tea and a visit. Dr. Coulter was there, and Dr. Bierman, and Dr. Kobak, editor of the Archives. It was nice to meet these gentlemen when their professional manners were left behind—when they drank tea and talked about things other than bones and joints, and the treatments thereof.

One of the proofs of our Hostess' diligence in making life pleasant for her guests, was well demonstrated on Thursday evening at the dinner time. We had a most delightful hour at the Mayfield Country Club, after the clinic of the afternoon, and before the dinner at the club. In the relaxed mood which a peaceful expanse of country can cast over a weary, warm body and a mind too intent on physical therapy, we sat about the huge veranda of the country club and lazily watched the last golfers saunter in from the course. It was a moment we wished to stretch out a bit, yet when dinner was announced, there were no lagging steps directed toward the dining room.

The dinner was excellent. There was entertainment, even. A self-appointed glee club generously rendered song after song—until our president looked somewhat disapprovingly at the continued performance, thinking perhaps that the before-dinner ginger ales may have been —spiked.

Then there was the banquet—informal dinner, the program committee called it. But it was a banquet, nevertheless, for there were things to eat, and the ladies were very much dressed up. Dr. Harry Rockwell, Director of Mount Sinai Hospital, made a good toastmaster and Dr. Frank H. Krusen from Temple University Hospital, Philadelphia, talked about the ever interesting field of fever therapy. Dr. Rockwell then called upon several others for impromptu "speeches." Dr. Philip Lewin, who came for the soup, but could not stay through for the nuts because he had to make a train, spoke, for a few minutes, very encouragingly to the members of the American Physiotherapy Association. Dr. Bierman, too, had to leave early, but he likewise, talked for a bit before his departure.

The evening's program culminated with an enlightening address on the problems of a new motorman running a Broadway street car from Howard Street through the Loop and back again. It was delivered by Mr. H. A. Carter, secretary of the Council on Physical Therapy. The address pictured the tragedy of being lost in a Chicago street car, but the audience failed to respond in tragic manner. The guests were convulsed for some time. Then, passing from the foolish to the serious, Mr. Carter went on to say that he had appreciated Dr. Krusen's talk, especially that part in which Dr. Krusen had given a brief history of fever therapy, going back as far as the time of King David and his high frequency women.

By the time the shouts of merriment had subsided around the tables, it was time to leave the banquet hall.

## President's Address

As President of our Association and presiding officer in this first session, it devolves upon your president to welcome you and to sum up our accomplishments and to outline the matters which lie before us for consideration. The keynote of what I have to say this morning is the maintenance and furtherance of our standards and ideals.

Although the activities of our various chapters and members embrace a wide variety of subjects, and there are different needs in different sections of the country, there are nevertheless certain standards and ideals which are not only desirable, but are absolutely essential for the professional survival of the individual members of the organization.

It is well to stop and consider what these standards are. The purpose of our organization is to establish and maintain a professional and scientific standard for those engaged in physical therapy, and we may well ask, "What have we done to carry out this purpose?"

First, in the admission of members, we have attempted to maintain a high education standard. The maintenance of such a standard is difficult: A clearly defined case can be easily handled, but the border line cases require careful discrimination. If injustices have been done, they have not been intentional. In a field so recently organized as ours, professional education has not been uniform. We have long felt the need of adequate means for the analysis, and the study of the courses offered in various schools and universities for physical therapy technicians. Through recent developments, we now have cause to believe that such an analysis will be efficiently carried out in the future. It has not been an easy matter to pass on the eligibility of those applicants whose training has been irregular though equivalent to the minimum standards required for membership. To meet this difficulty an examination is now being given to such applicants as fall in this group. Such admission by examination is provided in our constitution. It is by no means a lowering of standards but a more accurate way of determining the actual qualifications of applicants, whose training and experience qualifies them for membership.

Our second accomplishment has been the development of the Review through which we have established a medium of exchange of professional information. The Review is an organization of which the Association may well be proud. The number of articles and their content, are evidence of the high standard of work that is being done in our field throughout the country. In the short decade of our existence we have grown to a membership of seven hundred and seventy-three and have seventeen chapters. This membership extends from Maine to Texas and California. With this increase in numbers and geographical spread of our Association comes also a pride in the increased service which we are rendering to the public and the professional recognition which we are slowly but surely gaining.

Third, the meetings of the National Association have been an invaluable means of furthering the work

of the organization. This is evidenced by the number of people who have attended these meetings even through the present period of financial difficulty. The stimulus received from programs presented at our annual meetings and the enthusiasm awakened by visiting other departments are felt by all of us.

These are our major accomplishments. And now we ask, "What are the immediate objectives which lie before us?"

The answer is: The maintenance of our high standards; (2) strict observance of a scientific attitude; (3) the cementing of our relations with the medical profession under which we work. Upon our clear recognition and observance of these facts depend the continuation of our splendid relations with the medical profession.

In medical education of earlier years the points of importance were the prerequisites of students, physical plant, amount of clinical material, etc. In recent years these have come to be recognized as essentials, and now stress is laid on the personal calibre of faculty and the selection of students. We cannot go astray in following the same course. Already in the maintenance of high standards the co-operation of some schools giving courses in physical therapy has been most gratifying.

Criticisms have been made that some of our members have given treatments to patients without medical order. *This is unethical.* It is essential to our very existence that we maintain the Association's standard of ethics, and it is our professional duty to report all irregularities.

At present only a portion of the physical therapy technicians in the United States meet the standards of the American Physiotherapy Association. There is a definite place and need for those who may be trained in one or more branches of physical therapy technique. Some means of certification should be devised for those who fall in this group.

Last comes a point which lies near my heart—Unity. In so widespread a group as is ours, there is a tendency for contrary interests and local conditions to intervene and to destroy the vision of the common good. Yet we all know that in unity alone lies strength. Through unity and co-operation we have accomplished all that has been attained up to the present, and that all is too valuable to be lost. When I think of our organization I am reminded of a boat with its crew of skilled oarsmen. Its course lies straight before it, and if the rowers keep stroke, the boat goes forward with a swift and sure impulse, but if even one fails to pull with the others, the boat loses its perfect balance and possibly its goal.

Let us all keep stroke, and may the next decade of our existence show even greater progress than has the last.

MARGARET S. CAMPBELL.

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## Report of the Executive Committee

The Executive Committee of the American Physiotherapy Association held seven business meetings during the year 1933-34. Four of these were regular meetings and three special meetings.

Gertrude Beard of Chicago was appointed chairman of the Nominating Committee.

The total number of members was seven hundred and seventy-three against eight hundred and eleven of last year. A number of members have had to temporarily drop their memberships because of financial conditions. Provision was made to retain Junior members as such for the present year when they had been unable to secure work. Senior membership has been extended in some cases by special request.

In October the editor of the Review, Dorothea Beck, resigned, and Ida May Hazenhyer of Chicago was appointed to the office and Martha Hindman was appointed to succeed Gertrude Beard as business manager. The setup of the Review staff was determined and assistants to the editor named. Copies of the Review, which have heretofore been kept singly are now to be bound. Contracts for the Review were cancelled with Kable Brothers and given to the Printing Products Corporation of Chicago. This will affect considerable economy in publication.

The invitation to hold the 1934 Convention in Cleveland was accepted and plans for the annual meeting were put into the hands of the convention committee.

Plans for the examination of people irregularly trained were made at a meeting with the education chairman who presented questions for discussion. Forms including the four classifications into which applicants must fall were sent to the chapters for file together with other information about examinations. Examinations for membership were held in Minneapolis in January, and in Madison and in Chicago in May and in Los Angeles and San Francisco.

In March Miss Mary Hibbler resigned as legislative chairman and Miss Irma Walker of Chicago was appointed to this place.

The revisions committee submitted the tentative Constitution which was also carefully discussed.

Chapters were asked to give an opinion on:

1. Revision of the Constitution which means raising of dues.
2. Matter of a secondary membership.
3. Possible change of size and frequency of publication of the Review.

Fifteen chapters were in favor of raising the dues to pay for an executive secretary. All reporting chapters were agreed to keep our present membership standards and not include a secondary type. The majority of reporting chapters were not agreeable to a monthly publication at present since the cost would be increased.

The appointment bureau should in the future be handled by the executive secretary who should have a file of information about each member.

Some chapters made a request for proceedings of the Convention. Since the regular cost of these is so great that they are purchased only in duplicate for the President's and Secretary's files, it was agreed to have copies multigraphed for the chapters. These will be furnished without cost to all chapters.

In the year 1933 the recommendation was made that as soon as the organization was financially able, files of the secretary be cross-filed to make material more easily accessible. We strongly urge that this be considered in the coming year.

Secondly, it would be of great assistance to many committees to have a file of information about each member in the organization. This should include training, experience, special interests or projects, books and articles published, and a notation of willingness to give service on programs, etc. If such a file were available, the bureau of appointments, the convention committee and the education committee might secure people to assist in programs and in giving examinations. Other organizations sometimes write asking whom they can contact in a certain section of the country. This file

should be kept up-to-date by frequent reports from the chapters and members.

Respectfully submitted,

BESS SEARLS, Secretary.

## Report of the Treasurer

Again I want to thank the chapters and the members for their splendid co-operation during my fourth year of service. I know this work could not be done without the co-operation of everyone in the chapters.

The report of the Auditors is as follows:

"May 8, 1934.

"American Physiotherapy Association,
"Ann Arbor, Michigan.

"Ladies:

"Upon instructions received from Miss Mabel E. Holton, Treasurer of the American Physiotherapy Association, we have made an audit of her records for the year May 1, 1933 to April 30, 1934. We also examined the record of the Revolving Cash Fund for the Physiotherapy Review (Schedule A-1) and have traced the receipts therein recorded to the Treasurer's books.

"During the course of the audit, total recorded receipts were traced to deposit in the bank. Proper authorization for each disbursement was submitted to us. The balances in the commercial and savings accounts were verified by the Ann Arbor Savings Bank.

"The Statement of Cash Receipts and Disbursements (Exhibit A) shows that total cash receipts for the year were four thousand five hundred and thirty-eight dollars and seventy-three cents ($4,538.73) while the disbursements, including a returned check of ten dollars ($10.00) were two thousand six hundred and eighty-six dollars and ninety cents ($2,686.90). The excess of receipts over disbursements of one thousand nine hundred and sixty-four dollars and twenty cents ($1,964.20) brought the cash on hand to three thousand eight hundred and sixteen dollars and three cents ($3,816.03) on April 30, 1934 (Schedule A-2). A check will be issued by the Treasurer to cover the deficit of $8.29 in the Revolving Cash Fund of the Physiotherapy Review.

"Very truly yours,
"F. E. ROSE & COMPANY,
"By R. P. Briggs."

### EXHIBIT A

AMERICAN PHYSIOTHERAPY ASSOCIATION
STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS
MAY 1, 1933 TO APRIL 30, 1934

| | | |
|---|---|---|
| *Receipts* | | |
| Membership Dues: | | |
| Senior | $3,332.50 | |
| Junior | 177.00 | |
| Associate | 34.00 | $3,543.50 |
| Physiotherapy Review (Schedule A-1): | | |
| Subscriptions | $ 381.00 | |
| Sale of Extra Copies | 17.80 | |
| Sale of Reprints | 25.91 | |
| Advertising | 301.57 | |
| Advances for Illustrations | 57.52 | |
| Sale of Book | 3.00 | 786.80 |
| Convention Registration | | 82.00 |
| Appointment Bureau Fees | | 37.10 |
| Sale of Pins and Emblems | | 52.00 |
| Interest | | 24.03 |
| Miscellaneous | | 13.30 |
| Total Receipts | | $4,538.73 |
| *Disbursements* | | |
| American Medical Association Convention Expense | | $ 36.24 |
| Auditing | | 35.00 |
| Check Tax and Exchange Fees | | 5.84 |
| Committee Expenses: | | |
| Educational | $ 25.50 | |
| Executive | 130.03 | |
| Membership | 15.52 | |
| Revisions | 39.81 | 210.86 |
| Convention Expense: | | |
| Programs | $ 9.75 | |
| Report on Proceedings | 150.45 | |
| Traveling and Miscellaneous | 120.65 | 280.85 |
| Office Supplies, Printing and Miscellaneous | | 117.73 |
| Physiotherapy Review: | | |
| Editor's Expenses | $ 31.41 | |
| Postage | 80.00 | |
| Printing | 1,690.50 | |
| Stationery | 19.91 | 1,821.82 |
| Pins and Emblems | | 47.22 |
| Postage | | 102.00 |
| Refund—Dues | | 4.00 |
| Returned Check | | 10.00 |
| School List | | 8.50 |
| Treasurer's Bond | | 6.84 |
| Total Disbursements | | $2,686.90 |
| *Excess of Receipts over Disbursements* | | 1,851.83 |
| Add: Cash on Hand, May 1, 1933 | | 1,964.20 |
| *Cash on Hand, April 30, 1934 (Schedule A-2)* | | $3,816.03 |

### SCHEDULE A-1

AMERICAN PHYSIOTHERAPY ASSOCIATION
STATEMENT OF RECEIPTS AND DISBURSEMENTS
REVOLVING CASH FUND—PHYSIOTHERAPY REVIEW
MAY 1, 1933 TO APRIL 30, 1934

| | | |
|---|---|---|
| Receipts, May 1, 1933, to April 30, 1934 | | $741.87 |
| Less: Amount Transferred to Treasurer: | | |
| Recorded by Treasurer | $671.14a | |
| In Transit | 5.00 | 576.14 |
| | | $ 65.73 |
| Less: Disbursements: | | |
| Express | $ 53.13 | |
| Services | 3.50 | |
| Telegram | 2.50 | |
| Wrappers | .42 | |
| | 3.24 | 62.79 |
| *Excess of Receipts over Disbursements, May 1, 1933, to April 30, 1934* | | $ 2.94 |
| Deficit, May 1, 1933 | | 11.23 |
| *Deficit April 30, 1934* | | $ 8.29 |

a—In addition to this amount, $115.66 was received by the Treasurer direct.

### SCHEDULE A-2

AMERICAN PHYSIOTHERAPY ASSOCIATION
BANK RECONCILIATION AND CASH BALANCE
APRIL 30, 1934

ANN ARBOR SAVINGS BANK COMMERCIAL ACCOUNT

| | | |
|---|---|---|
| Balance per Bank Statement, April 30, 1934 | | $1,309.58 |
| Less: Outstanding Checks: | | |
| *Number* | *Amount* | |
| 305 | $ 1.00 | |
| 307 | 10.00 | |
| 312 | 25.00 | |
| 313 | 3.00 | |
| 314 | 25.00 | |
| 315 | 5.00 | |
| 316 | 1.13 | 70.13 |
| *Balance per Books, April 30, 1934* | | $1,339.45 |

ANN ARBOR SAVINGS BANK—SAVINGS ACCOUNT

| | | |
|---|---|---|
| Balance, May 1, 1933 | $ 552.55 | |
| Add: Transfers from Commercial Account | $2,000.00 | |
| Interest | 24.03 | 2,024.03 |
| *Balance, April 30, 1934* | | 2,576.58 |
| *Cash Balance, April 30, 1934 (Exhibit A)* | | $3,816.03 |

*Respectfully submitted,*

MABEL HOLTON, Treasurer.

## Report of Editor of The Physiotherapy Review

My duties as Editor of the Physiotherapy Review began with the November-December, 1933, issue. As a matter of fact, Dorothea Beck had written her resignation before that, but because I was acting business manager at the time and had more than enough to do with that, she graciously agreed to get out the September-October issue.

Just here, let me depart for a moment from the business of making a report to pay respect to one who for several years gave of her time and thought to the building up of the Review. To be sure, I did realize that our magazine was a worthy one, that it held no mean place as a professional journal, and that many a complimentary remark was passed upon it. I knew that the Association was proud of it. And I knew, in a way, that the job of putting out the journal must represent a goodly amount of work. But I did not know, until I started doing the work, just how much time could be spent upon an editorial job.

The Association may well be grateful to Dorothea Beck for the years she served as editor. And it is. For the many comments which have come to me, prove that her generosity did not pass unobserved. The members of the Association appreciate the service she has rendered, and the Executive Committee expresses its gratitude.

The continuation of my report must necessarily mean an expression of more gratitude on my part, for from the very beginning last fall, I have been impressed by and deeply grateful for the help and co-operation of the chapters and of my co-workers. However much work and responsibility the editor may have to shoulder, if she has the feeling that those working with her are really with her, the work becomes a pleasure. The chapters have responded to the urgent request to get material to us on time, for in spite of the last minute rushes and the eleventh hour telegrams, we have managed to get the Review out by the middle of the first month. And all this has been made more possible by the excellent assistance of the entire Review staff. I voice my sincere thanks to my three associates, Misses Beard, Roen, Sinn, to my assistant Miss Svebelius, and to Miss Hindman and her assistant Miss Foss. Each one has done her part, not only well, but graciously. Since I took care of the business myself, for a few months last year, I know exactly what a job Miss Hindman and Miss Foss have.

I decided upon the present arrangement of the staff after discussing the situation with the Executive Committee and with others familiar with the work. The responsibility of a journal like the Review is too great for one person to carry. We felt that a board representing the opinions of various parts of the country would be a wise thing. We decided upon five members: the editor, three associates, and a business manager. Since this makes an odd number it is the best plan when important matters are to be voted upon. These members may have as many assistants as they need. As a matter of fact, the present staff and the Executive Committee believe this arrangement such a good plan that we have incorporated it in the pending constitution. We recommend the adoption of it as stated in the by-laws.

During the time I was acting business manager last year, arrangements were made to change printers. While our former printers were quite satisfactory as to the service, we felt that expenses should be cut if possible since the Review is our greatest burden. We, therefore, made a change with a very appreciable saving. The change does mean more labor for the editor and her assistant for we do much of the detail work formerly done by the printers, but I believe it is a better plan in the end. It only remains to be seen how long the editor can stand the strain.

Respectfully submitted,
IDA MAY HAZENHYER, Editor.

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## Report of the Business Manager of the Review

When the files of the Physiotherapy Review were sent to me October, 1933, I was simply overwhelmed with the detail work attached to the job. It then and is is still like trying to work a very difficult cross-word puzzle. If it had not been for the assistance from Misses Hazenhyer, Beard and Holton, it would have been a Chinese puzzle, but with their patience and kind help I have to a certain degree mastered the routine, but not the technic of getting ads.

I feel that our magazine is our best agent for publicity. I, therefore, earnestly urge each chapter and individual member to place all subscriptions possible, and if you know of any firm handling equipment or products suitable to be advertised in the Review, to approach them regarding advertising or send the name and address to me. I will gladly furnish advertising rates on request.

The financial report of the Review is incorporated in the Treasurer's Report so I will not repeat it here. Beginning with the 1934 fiscal year, I have set up a double entry bookkeeping system and will be able to give a detailed report of business transacted, number of Reviews received, how many have been sent out, also a record of where and to whom the extra copies are sent, whether the majority of requests come from hospitals, institutions, schools or individuals.

Even though we hold the mailing list up to the last minute in order to make changes in addresses before sending it to the publishers, yet after each issue has been sent out we receive a number of complaints from members saying they have not received their Review. When you change residence if you leave a change of address your magazine will be sent to you, unless you change cities; then, of course, second class mail matter will not be forwarded. We are glad to send copies to anyone not receiving the regular copy. In order not to miss your copy and to cut down the constant changing of addresses, I would suggest that you have your Review sent to your place of business, which would not be subject to change as frequently as residence.

I wish to thank you one and all for your co-operation and promptness in answering letters since I have attempted to manage the business of the Review.

Respectfully submitted,
MARTHA HINDMAN, Business Manager.

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## Report of Membership Committee

The Membership Committee presents to the Convention fifty-seven candidates, whose applications have been acted upon by the Executive Committee since last convention. Of this number fourteen senior members and seventeen junior members have been accepted on the basis of the constitutional requirements of training, experience, and proper recommendations. Three former junior members have been accepted as senior members, and one former senior member, now a doctor of medi-

cine, has become an associate member. Five applicants have been rejected. Seven candidates have availed themselves of the opportunity, offered by the Association for the first time, of admission by examination. Six of these passed the examination and one failed. Ten more candidates have been declared eligible for admission by examination, some of whom have expressed the desire to take an examination at a later date.

This in a nutshell, summarizes the work of this committee, during the past year resulting in the acceptance or rejection of applicants. However, it gives only an inkling of all the correspondence carried on in the interests of maintaining the standards of the Association, in selecting new members. Nine applications are on hand, awaiting more information before they will be ready to present to the Executive Committee. Replying to numerous inquiries concerning membership requirements, sending out application blanks, discouraging impossible would-be applicants, sending out chapter supplies, and co-operating with chapter membership committees, confronted with questionable applications, all have contributed to the arduous, though interesting, labors of this committee.

This report would be more complete if it included the number of applications accepted and rejected by all of our chapters. But I have no accurate information on that. However, correspondence with chapter membership committee chairmen indicates a hearty co-operation on the part of most of our chapters and sufficient increase in numbers to indicate growth and strengthening of our organization.

I must say "most of our chapters" rather than all because a few chapters have sent in no requests for information as to whether applicants have ever been rejected for membership, a ruling passed at the 1933 convention. Does this mean that these chapters have accepted no new members in a year?

It does seem that one or two of our chapters think of the National Executive Committee as a vigilance committee whose particular pleasure it is to reject applicants recommended by a chapter. Let me assure you that no application received from a chapter is rejected without most careful consideration. A recommendation by a chapter should be and is a decisive factor in considering an application. On the other hand, if we owe the chapter presenting the applications our earnest consideration, so do we owe the other sixteen chapters that same consideration. We are more or less a migratory group, and if a doubtful applicant from Chapter A is accepted and later moves into the vicinity of Chapter B where she must be permitted all the privileges of that chapter, we have a duty toward that chapter as well as toward the first. Is it fair to the members of Chapter B, whose chapter perhaps has never asked that an exception be made to the constitutional requirements, that an insufficiently trained member be allowed to compete with better trained technicians? And this she may do simply because she is known to be a member of the American Physiotherapy Association in a community where such membership has always stood for the highest standards of proficiency.

Admission by examination, instituted for the first time, has been in the way of a more or less noble experiment, by the Committee on Education and the Membership Committee. Results, I believe, have been satisfactory, but the work in connection with this plan has been, I believe, out of proportion to the results obtained. This does not mean that I am opposed to this plan of admitting members. I am heartily in favor of it, and it is reasonable to expect that another year will find us better able to cope with the difficulties of administering the plan. Eligibility of candidates for examination must be as carefully considered as applications for membership, and arrangements must be made for conducting the examination for perhaps ten different candidates in as many localities on the same date.

In this connection I should like to urge the co-operation of members at large, and of chapters, in presenting possible examination of candidates to the Membership Committee as soon as the next examination is announced, and not one week or two weeks before the date of the examination. Western Union's slogan "Don't write, telegraph," is good business for them, but expensive and often unsatisfactory for the Association.

Perhaps with so many members of the Association working for the advancement of our organization without public commendation, it is out of order to mention names here. Nevertheless in closing this report, I should like to make some recognition of the five members who so generously gave their time and efforts in conducting the examinations for the Executive Committee, namely: Miss Gertrude Beard of Chicago, Miss Hazel Furscott of San Francisco, Miss Sara Kollman of Minneapolis, Miss Martha Lewis of Madison, and Mrs. Annabelle Roether of Los Angeles.

Respectfully submitted,

MARIEN SWEZEY, Chairman.

## Report of the National Legislative Committee

Reports for the year from the various chapters are as follows:

Chicago—No legislation has been introduced during this year at Springfield. Through the courtesy of the Illinois State Medical Society we are kept informed of any bills which may be presented concerning the treatment of human ailments. We are keeping on file the model law for future reference.

Massachusetts—No legislative activities to report for this year. We are advised that our medical friends are working to make a law which will include us with them, which procedure they feel is best for this state.

New Jersey—The past year has been inactive as far as legislation is concerned. We feel that it is best to transfer the initiative along this line to the medical profession.

New York—There has been no action pertaining to legislation within this Chapter this year. Our medical advisors within the state, notably the State Chairman of Physical Therapy has advised again legal action—to quote—"The medical profession is unanimous in its opinion that the inclusion of the physiotherapy clause in the Medical Practice Act of 1926 was a serious mistake. The organized profession is unalterably opposed to enlarging the scope of that clause or to adding in any form whatsoever to the number of legally licensed technical personnel. Our committee has the backing of legal counsel, as well as that of the State Department of Education that for obtaining positions in institutions and doctor's offices no licenses of any sort are needed. We recognize the aims and standards of the American Physiotherapy Association, and realize that membership therein is a badge of good training and good moral character."

Northern California—Upon inquiry to Dr. Pinkham, Medical Director of the California State Board of

Medical Examiners, and, representative for the State Medical Association in Sacramento for all medical legislation, I find that no legislation has been enacted in the state of California concerning Physiotherapy during the past year.

The only important occurrence was the judgment of Judge James of San Jose that *no* Chiropractor may use physiotherapy apparatus in the practice of Chiropractic I understand that Judge James before rendering his decision saw a copy of the Constitution of the American Physiotherapy Association and was aware that Physiotherapy could be administered by qualified technicians under the supervision of licensed physicians. This decision is important in California where the Chiropractor is licensed.

Pennsylvania—Pennsylvania has a law requiring examination and registration of persons desiring to practice as physical therapy technicians.

Southern California—No activities of any consequence. We have had a representative at the several state medical meetings, but no action has been taken on any of our problems.

Wisconsin—No legislation presented or passed. Our legislative committee has been in touch with the Legislative Committee of the Wisconsin Medical Association.

I regret to state that the other chapters have not replied to our letters of inquiry.

Respectfully submitted,

IRMA J. WALKER, Chairman.

## Report of Publicity Committee

Realizing that the work of the various committees was being changed and more of the work of the Publicity Committee being absorbed by other departments, it was deemed advisable to start the work of the Publicity Committee as the new Constitution calls for it, that of real publicity of our organization, both to the medical profession and to the laity.

Shortly after our convention last June we received an emergency request from the Wisconsin Chapter to help them create a booth for the American Hospital Association Convention. To this exhibit were sent posters and some other material to aid them in having a good exhibit.

This year, due to lack of space in the Auditorium, we were unable to have an exhibit in the American Medical Association, as we did last year.

Also with the aid of one of the editorial staff of the Review, we had a published account of our convention in several of the allied medical and hospital magazines.

Last year we had a request for movies which could be loaned to medical societies, showing various phases of physical therapy, and following this request, a list of movies was started and a fair response came from the various chapters as to those having made or owning motion pictures. This list is by no means complete and I hope to add to it and publish the list shortly in the Review.

The object of such a list is to provide for just such instances as this request coming to us from a country hospital somewhere in Maine wishing to know of our work.

It would also stimulate interest in our own chapters to have a program showing movies made by members of the chapter and other chapters as well.

I would suggest that you take back to your publicity chairman and to your president the suggestion that you personally contact, see if possible, some woman member of your city newspaper. Perhaps the local medical bulletin will include your chapter meeting announcement. It would not hurt to try.

We are fighting for existence, and one of the surest ways of strength is by favorable introduction to the public.

This is, of course, publicity of an excellent type, and I believe is satisfactory to the doctors. For instance, I had occasion to call a doctor whom I did not know, and I said, "You know, we do not accept any cases without orders."

He said, "I presume you are just like an ethical druggist who does not give out special medicines without orders." That is a phase of publicity we cannot afford to neglect.

Respectfully submitted,

MARGARET WALLACE, Chairman.

## Report of Bureau of Appointments

While some of the figures of the past year are more encouraging than those of the year previous, the final results are not so much so. The last few months have brought several requests for technicians. Names were sent and letters written to each applicant but in practically every instance the position was filled by "local material." Naturally personal interviews are quite out of the question half way across the country. Reports from chapter bureaus are more favorable because of the comparative nearness of position and applicant.

Hospitals are asking for many combinations with physical therapy; x-ray, teaching of biology, etc., laboratory technicians, more frequently general nursing. I would, therefore, urge all those who can, to add these allied subjects to their equipment.

While the control of the Bureau should not be out of the hands of the American Physiotherapy Association some better plan could be devised so that those persons employing physical therapy technicians could be brought in closer contact with those seeking employment.

Feeling myself quite inadequate to meet the situation, I hereby tender my resignation as Chairman of the Bureau of Appointments to take effect as soon as the Executive Committee can conveniently take care of the situation.

The formal report follows:

| | |
|---|---|
| Number of applicants for positions | 34 |
| Number of requests for technicians | 12 |
| Number of positions filled | 2 |

Respectfully submitted,

EMILY J. GRIFFIN, Chairman.

## Report of Exhibits

Cleveland Chapter has scored a point in the matter of physical therapy exhibits for American Physiotherapy Association Conventions.

The exhibits were well shown and consisted of comparative charts, photographs of cases, apparatus, treatment rooms; records, reports, imprints and tracings; models of special braces, splints, pads and many other aids in the treatment of the handicapped. The model gymnasium caught the eye as did the articles made through the instruction of Occupational Therapy Departments. Books, constructive games, the walk-aiders—all added something educational. The paraffin bath apparatus illustrated an article in a recent Physiotherapy Review.

No one visiting this room could fail to gain much in

ideas and information. The participating chapters deserve credit for their co-operation, and it is to be hoped no chapter will be missing another year.

Future Convention committees must be on their mettle to continue the growth of this most essential adjunct to our Conventions.

The exhibit of Massachusetts Chapter was awarded first place, by popular vote; Wisconsin Chapter, second place, and Minnesota was given honorable mention.

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## Reports of Chapters

### Chicago Chapter

The Chicago Chapter, as you no doubt realize by our good representation here, is a very large chapter of over sixty members. It is composed, as are most of the chapters, of about one-third public school physical therapists, one-third visiting nurses, and one-third hospital and private office physical therapists. We hold our meetings once in two months.

We have been most fortunate in having four of the six meetings very well attended and even had over half of the members at a pre-convention special meeting.

We have started our plans for next fall, and it is just possible that we will have a course of extensive study in the Mensendeick work, not sponsored by the Chapter but available to our members. This was inspired by a talk and demonstration of some of the work done by one of Dr. Mensendeick's assistants. We are also planning to have a forum at one meeting conducted by our own members.

In the case of speakers working on special things pertaining to our own work, we have had a talk on the technic of the physical therapy given by the physical therapist who was co-operating with the speaker. This has been most valuable and has helped materially in our meetings.

What this new year will bring forth, we cannot say, but we have high hopes for the Chicago Chapter.

1. Number of active members:

Senior, 61.
Junior, 2.
New members, 3 active, 2 junior.
Members dropped, 6.

2. Number of meetings held during the year:.

Regular 5, special 1.

3. Lecturers and speakers heard during the year:

Miss Gudrin Carlson, who was Trades Commissioner to Norway for five years.

Dr. Benjamin Boshes—The Myopathies.

Dr. Eugene McEnery—The Use of Physiotherapy in the After-Care of Empyema.

Mr. Alfred Motley—Lecture-demonstration.

Miss A. Meusser, of Mensendeick.

### Cleveland Chapter

1. Number of active members:

Senior, 21.
Junior, 2.
New members, 2.
Members dropped, 1.

2. Number of meetings held during the year, 6.

3. Lectures and speakers heard during the year:

On October 16, 1933, at Lakeside Hospital, a lecture on Soviet Medicia was given by Dr. S. C. Lind, with slides showing hospital care and many points of interest in Russia.

On Saturday, November 4, the Cleveland Chapter visited Springfield Lake Sanitarium, south of Akron. Dr. Hyde gave a very instructive talk, which was followed by a trip through the hospital and grounds.

On Monday, December 11th at Lakeside Hospital, Dr. J. C. Leonard gave an excellent paper on Brachial Plexus Injuries.

At the February meeting the president, Anna Wetterhuus, showed pictures of her very interesting vacation trip to Scandinavia. Plans were formulated at this meeting for the convention of the American Physiotherapy Association to be held in Cleveland in June.

Several committee meetings were held in April and May to assist in making the Cleveland Convention a success, despite the fact that it would be the thirteenth one.

Up to the present time nothing has been accomplished through legislation for the physical therapists of Ohio.

The Education Committee reports that a list of approved schools of physical therapy is kept on file. A few letters have been received from women who wished to know the requirements of training for qualified physical therapists. These have been carefully answered.

The Cleveland Chapter contributed three articles to the January-February issue of the Physiotherapy Review and one article to the May-June issue, as well as some convention notices and editorials.

In April-May of 1933 a registration bureau for physical therapists doing private work was established at the Academy of Medicine. Postcard notices of this new service were sent to all members of the Academy in September. However, the bureau has not accomplished the hoped-for results, and very few calls have been received. It is evident that further information regarding physical therapy is much needed among our physicians.

### District of Columbia Chapter

Number of active members, 15.
Members dropped, 4.
Number of meetings held during the year, 8.
Officers:
President—Laura Sansbury.
Vice-President—Mrs. Freda Gassin.
Secretary-Treasurer—Emma E. Vogel.

Monthly meetings were held the first Tuesday of the month in the offices of Dr. Talbot, 1835 Eye Street; Dr. A. S. Barger, 1125 Buchanan Street, and at Washington School of Physical Education, 1726 N. H. Avenue, N. W., Washington, D. C.

The following program of talks was arranged by Miss Elizabeth Carlquist, Chairman of the Program Committee:

Dr. A. Barship—Problems of Psychiatry.

Dr. A. S. Barger—Talk and Practical Demonstration of Equipment used in Dr. Barger's Offices.

Dr. J. Neviaser—The Human Foot: Diagnosis and Treatment.

Mrs. Pyle—Physiotherapy Activities at St. Elizabeth's Hospital.

Miss Bowling, R. N.—Activities of the Visiting Nurses' Association in the District of Columbia.

Prof. Emory Sitoff—Talk and Demonstration of the New Exercise System.

The District of Columbia Chapter approves the appointment of a permanent paid secretary for the National Organization, provided that chapters are first informed as to the increase in dues necessary for this procedure.

The District of Columbia Chapter feels that it would greatly benefit the National Organization to increase the number of honorary members in the roll.

### Massachusetts Chapter

1. Number of active members:

Senior, 64.
Junior, 4.
New members, 6.
Members dropped, 11.

2. Number of meetings during year, 8.

3. Lectures and speakers during the year:

1. Film on muscle examination, pool treatment, and individual exercise for infantile paralysis.
2. Lecture—Recent Development in the Field of Medicine.
3. Lecture—Cost of Medical Care.
4. Lecture—Scoliosis.
5. Film on respiratory and circulatory systems.
6. Film on feet and posture, structure of abdominal wall, calles fracture.

4. General report:

Muscle training course.
Electro-physics course.

The question of membership and dues seemed to cause a great deal of discussion. The general attitude on the question of dues is decidedly unfavorable.

### Michigan Chapter

1. Number of active members:

Senior, 35.
Junior, 1.
New members, 2.
Members dropped, 4.

2. Number of meetings during the year, 4.

3. Lectures and speakers during the year:

Dr. Kidner—Spastic Paralysis.
Dr. Curtis—Operation on Club Foot.
Dr. Kidner—Obscure Bone Pathologies.
Dr. Peabody—Muscle Transplants.
Dr. Brokenshire—Unusual Case of T. B.
Dr. Fischer—Unusual Congenital Ankylosis of Small Joints.
Dr. Howett—State Program for Crippled Children.

4. General report:

The Chapter is in favor of establishing a paid secretary-treasurer, and in the raising of dues to make this possible.

The Chapter is not in favor of admitting limited groups for membership at the present time.

### Minnesota Chapter

1. Number of active members:

Senior, 20.
Junior, 4.
New members, 1.
Members dropped, 1.

2. Number of meetings during the year:

Regular, 9; special, 2.

3. Lectures and speakers during the year:

Dr. Evans—Neurological Aspect of Poliomyelitis.
Dr. Von der Weyer—Progressive Muscular Distrophy.
Dr. Williamson—Fascial Transplant to Abdominal Wall in Abdominal Paralysis.
Dr. Bryngelson—Mental Hygiene.

4. General report:

A series of lectures were given at the regular monthly meetings by Dr. Evans, treating the following subjects:

Spastic Paralysis.
Low Back Conditions.
Ischemic Paralysis.
Landry's Paralysis.
Berger's Disease.
Steindler Shift for Scoliosis.

### New Jersey Chapter

1. Number of active members:

Senior, 18.
Junior, 7.
New members, 0.
Members dropped, 4.

2. Number of meetings during year, 8.

3. Lectures and speakers during the year:

October—Dinner meeting, New York. Program by New York Chapter.
November—Dr. Stanaback, Chiropodist. Common Foot Troubles. Miss M. Larson, Weak Foot.
December—Dr. Fred Albee. Program by New York Chapter.
January—Dr. Russell, Bio-chemist. Discussed by Miss H. Stone.
February—Dr. Wm. Healey and Dr. Richard Kovacs. Program by New York Chapter.
March—Dr. George Deaver, New York University; Dr. Wm. Bierman, Congress of Physical Therapy; Future Policies of Our Organization.
April—Miss Olga Lommen. New York Chapter Program.
May—Annual business meeting and election of officers:
President—Miss Janet North.
Secretary—Miss Dorothy Johnston.

4. General report:

The Chapter appointed a committee to get general attitude toward proposed constitution. The report was favorable.

The New Jersey and New York Chapters are using a joint library. Books are exchanged at each meeting.

### New York Chapter

1. Number of active members:

Senior, 46.
Junior, 9.
New members, 12.
Members dropped, 11.

2. Number of meetings during the year, 8.

3. Lectures and speakers during the year:

Dr. Fred H. Albee—Physiotherapy in Myofascitis.
Dr. William V. Healey—Active Motion vs. Passive Motion in the Treatment of Injuries.
Dr. Richard Kovacs—Physical Therapy in Europe.
Miss Olga Lowman—Resume of Work in the New York Department of Physically Handicapped Children.

4. General report:

The New York and New Jersey Chapters have met jointly once a month. The meetings have been held in New York and in Newark alternately.

The first meeting was a dinner at which the advisory councils of both chapters were guests of honor.

### Northern California Chapter

1. Number of active members:

Senior, 30; Junior, 3.
New members, 7; dropped, 2, leaving town.

2. Number of meetings held during year, 9.

3. Lectures and speakers during the year.

Dr. Leroy Abbott—Bone Lengthening.
Dr. John Saunders—Muscle Function. Six lectures.
February 27—Dinner and business meeting.
May 18—Final business meeting and election of officers.

The whole state of California has been involved in a bit of co-operation with the State Medical Association. Perhaps a very brief report of that would be in order. Miss Prescott is the chairman of the committee, and we had hoped to have a written report from her but have not yet received it.

The California State Medical Association appointed a state committee on physical therapy. As soon as we heard about it we appointed a co-ordinating committee from Southern and Northern California Chapters, and we have been working with them through the year. Their object was to put the subject of physical therapy before the various county medical associations. We offered our co-operation to each of those county medical associations and in many instances have had gratifying results. We have helped them conduct a survey of physical therapy as practiced in the state of California. They have not done very much with that material as yet, but the material has been collected.

### Oregon Chapter

1. Number of active members:

Senior, 14; members dropped, 3.

2. Number of meetings held during the year, 4.

3. Lectures and speakers during the year:

Dr. Leavitt—Activities of out-patient clinic.
Helen Phillips—Body Mechanics.

4. General report:

What constitutes a junior member? It is not fully explained in Article 3, Section B. A majority of Oregon Chapter members protest it as a scheme to enter office-trained technicians.

### Pennsylvania Chapter

1. Number of active members: 56.
New members, 3; members dropped, 4.

2. Number of meetings during year:

June 2, 1933 to May 1, 1934—9 regular business meetings.

June 7, 1933 to May 23, 1934—10 Board of Directors meetings.

3. Lectures and speakers during the year:

Dr. Frank H. Krusen—Motion pictures and talk on Physical Therapy.
Dr. A. C. Morgan—The Value of a State License to a Physical Therapist.
Dr. Richard Larer—The Psychology of Success.
Dr. Donald T. Jones—Is Physical Therapy Necessary in the Treatment of Fractures?
Dr. John A. Murphy—Asthma and Allied Conditions.
Dr. Elmer V. Eyman—Mental Hygiene.
Marion Bryant, member—Bursitis, with X-ray pictures.
Franklin M. Crispin—Economics.
Dr. Theodore F. Bach—Physical Therapy in Relation to Arthritis.

At the annual meeting, June 1, 1934, the following officers were elected:

President, Marion Bryant.
Vice-President, S. Paul Campbell.
Secretary, Louise Jetter.
Treasurer, Melvin R. Kressley.
Member-at-Large, Lidie Keffer.

We do have a majority of women in the organization, but some of our members object to our being called a woman's organization. We have about eight or ten men members, and they are a fine type of men and are doing a lot of good hard work for the Association. You will notice two of our new officers are men.

### Southern California Chapter

1. Number of active members:

Senior, 57.
Junior, 5.
New members, 10.
Members dropped, 5.

2. Number of meetings held during the year, 5.

3. Lectures and speakers during the year:

Dr. J. C. Walker—Treatment of Chronic Arthritis in European and American Clinics.
Dr. Steele F. Steward—Congenital Hips.
Dr. Harold Crowe—Physical Therapy Around the Northern Hemisphere.
Dr. J. C. Rissor—Prognosis of the Untreated Scoliosis.

4: General report:

Approval of dues in new constitution.

It might be added that our last annual meeting on June 6 was a social affair, given at the woman's building at the University of California.

### Rhode Island Chapter

1. Number of active members:

Senior, 8.
Members dropped, 1.

2. Number of meetings during the year, 1.

3. Lectures and speakers during the year, none.

4. General report:

Members of the Rhode Island Chapter attend the meetings of the Massachusetts Chapter.

### Washington Chapter

1. Number of active members:

Senior, 16.
New members, 2.
Members dropped, 1.

2. Number of meetings during year, 8.

3. Lectures and speakers during the year:

Dr. C. F. Davidson—Muscular Dystrophy.
Dr. C. Smith—Hyperpyrexia.
Dr. H. T. Buckner—Fractures of Patella.
Dr. Schreiner—Plastic Surgery.

4. General report:

A copy of the Physiotherapy Review was placed in

the Medical Library of Seattle and Tacoma. A set of *Principles and Practice of Physical Therapy* by Pemberton and Coulter, was purchased for our library.

The chapter went on record as disapproving the secondary type of membership. It approved of not more than $3.00 increase in dues.

### Western New York Chapter

1. Number of active members:

Senior, 17.
Junior, 2.
New members, 4.
Members dropped, 3.

2. Number of meetings during the year, 4.

3. Lectures and speakers during the year:

Dr. R. Montfort Scheley—Psychiatry.
Dr. E. T. Wentworth—An Historical and Philosophical Consideration of Backache.
Dr. Pio Blanco—Low Back Conditions.

4. General report:

The chapter favored the proposal to arrange examinations for those whose training has been irregular but who are doing good work in the field.

The chapter is opposed to the secondary type of membership.

The chapter wishes to compliment the editor and her associates for the excellent Reviews which have come to us this year. This has also been commented on by several of the doctors who are associate members and who feel a very strong interest in our work.

### Wisconsin Chapter

1. Number of active members:

Senior, 30.
Junior, 5.
New members, 8.
Members transferred, 1.

2. Number of meetings during the year, 4.

3. Lectures and speakers during the year:

Dr. R. H. Jefferson—Personality Problems in the Handicapped Child.
Dr. A. A. Schaeffer—Burns and Their Treatment.
Dr. Robert Montgomery—Scoliosis.

4. General report:

The Chapter was hostess to Dr. MacNamara of Australia during her visit to Milwaukee to attend the meetings of the American Medical Association.

The Chapter co-operated with the National Association in establishing its first exhibit at the American Hospital Convention here.

The Wisconsin Chapter News has continued its growth for closer interrelationship, reprinting important addresses, articles, etc., associated with our work, and suggesting reading material for professional advancement.

As a chapter, we have attempted to bind ourselves together to increase our stability in the community by steadfast ethical courtesy to the medical profession. We have attempted to carry forward the fine standards which our National Association has founded, and we sincerely appreciate the struggle it has made to establish the American Physiotherapy Association as a strong organization.

## Radio Talk by Our President

Many of you no doubt have had some contact with diseases such as infantile paralysis and arthritis,—injuries such as fractures, torn ligaments or sprains,—or deformities such as spinal curvature.

In the treatment of these conditions, physical therapy, if indicated, must be directed by a physician.

Physical therapy as you all know is the treatment of these and similar conditions by the physical forces of nature which are: heat, light, water, rest, exercise, manipulation, massage and electricity.

The treatment of infantile paralysis is highly specialized. A comprehensive knowledge of anatomy and muscle function is necessary in order to evaluate the degree of paralysis before beginning the re-education of these paralyzed muscles. You have heard of the work done at Warm Springs, Georgia. For many years muscle re-education under water has been used in infantile paralysis throughout the United States. The value lies in the buoyancy of the water, not in any chemical properties.

Other branches of physical therapy are equally specialized.

The technique of these treatments cannot be adequately carried out by other than a person with training and skill. The movement of a recent fracture or massage in a recent sprain or application of electricity in various conditions may do more harm than good if not performed by a qualified person under medical direction. The physician requires the services of the physical therapy technician in some cases as much as he requires the services of the graduate nurse in others.

The American Physiotherapy Association has developed from the group known as Reconstruction Aides during the World War. At the time the United States entered the War there were in the service no women trained in physical therapy. In a short time fourteen schools and colleges organized courses outlined by the Surgeon General's office to train people in uniform requirements to meet this need. This measure was the beginning in the United States of standardized education for physical therapy technicians.

Since its organization the American Physiotherapy Association has endeavored to establish and maintain professional and scientific standards for those engaged in physical therapy. The requirements for membership in this association are as follows: "Graduation from a school of nursing or physical education, followed by a special nine months course in physical therapy." Members of this organization work only under medical direction in hospitals, clinics, schools for crippled children, and physicians' offices. In many sections Visiting Nurse Associations have especially trained group to carry out this type of treatment under medical direction in the homes of patients.

A field closely allied to physical therapy is that of occupational therapy in which crafts, adapted to the physical limitations of each patient, are used as a means of rehabilitation.

The American Physiotherapy Association in thus introducing itself to the public wishes to assure the radio audience of its absolute sense of responsibility in service to the public and to the medical profession, and appreciates this opportunity given by the Higbee Company to broadcast this information.

# ABSTRACTS

**John S. Coulter, M. D.**

## POSTURE

### A Standard for Anterior Posture

C. Ulysses Moore, M. D., Portland, Oregon, in Am. J. Diseases of Children, 47:3:488, March, 1934.

Esthetics is a strong stimulant, stronger than a vague promise of better health. The requirements of health and beauty combine to demand the finest physical type. The physician's attention has been so centered on illness, from colic to cancer, that posture is perhaps the least cultivated field in the range of pediatrics.

A discussion of standards of posture therefore appears timely. Previous papers on body mechanics by Coe and Wiggins indicate the interest in this subject. Since the public has become aroused also, do they not need encouragement and assistance?

The field for work on posture includes every child from birth through puberty. Perfect posture implies a perfect form. That form is dependent on posture is an undisputed fact. A weak body can be strengthened by correct posture, and without it even a strong body cannot be perfect. Muscles, nerves and vital organs, not to mention disposition, energy and endurance, are all affected by the posture of the body.

Although the standards for physical fitness in our army and navy today are pitifully low, nevertheless about 40 per cent of 6,375 men examined for the Marine Corps at Portland were rejected. Anderson states that flatfoot and other rachitic conditions were responsible for nearly 50 per cent of the rejections. Flat feet are the surest sign of the grade of posture that a child will obtain. If the feet and legs from the knees down are perfect, the whole body is likely to be perfect.

If only 1 per cent of children are capable of receiving a grade of A-1 for posture, then 99 per cent need instruction which is medically supervised. Much may be done in the schools, especially in the grammar grades, but for the highest degree of success an earlier start is essential. Preventive work should begin with the infant. If at birth the bones are soft, the mastoid fontanelles easily palpable, the lamboidal and sagittal sutures open and the bone edges flexible, inadequate calcification is evident. It is then that corrective measures should be instituted.

The adoption of easily applied standards for posture, the arousal of a 100 per cent interest in posture on the part of the medical profession and the stimulation among teachers and lay organizations of greater interest in prevention and correction of incorrect posture are eminently desirable. But these are of mediocre value unless followed up by the physician who can give instruction regarding mineral metabolism, dietary balance and normal health habits. What boots it if by certain exercises or by special devices the physician gets the scaphoid bone back in place so as to correct a flatfoot if he does not at the same time increase the calcification of that bone and its abutting fellows so as to enable them to hold their places permanently? I grant that severe physical deformities are orthopedic problems. But are not the mild cases and those in the initial stages of an insidious onset primarily pediatric?

*Summary*

Proper posture signifies physical perfection, the importance of which challenges the interest of both physicians and laymen.

Standards for anterior posture comparable and complementary to the profile forms are suggested which permit anterposterior grading.

The application of both these profile and anterior standards to several hundred children indicates that a person deserving an A-1 grade is extremely very rare.

Grading and correction of posture should be combined with careful attention to mineral metabolism.

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### Posture and Dysmenorrhea

Norman F. Miller, B.S., M.D., Ann Arbor, Mich., in Am. J. Obstetrics & Gynec., 27:5:684, May, 1934.

The amount of data obtained from this study is somewhat bewildering. Indeed, we are none too confident that the findings have been properly and fully interpreted. The final tabulations have been a source of both surprise and disillusionment. When the preliminary report of 1928 was written, it forecast a vastly different picture than we are now able to present. At that time the relationship between faulty posture and dysmenorrhea seemed definite, and it was only with effort that a natural enthusiasm was suppressed. Today, the evidence is even more striking, but in an opposite direction. For we not only failed to substantiate what in earlier studies indicated a rather close association, but further, have created in our minds no small doubt concerning the correctness of our present day ideas of desirable posture for women. More of this, however, at some other time.

Of the 302 women studied, 145 or 48 per cent complained of dysmenorrhea in 1927 at the opening of college when this study was begun. Though the incidence of dysmenorrhea varied during the intervening years, the surprising fact (to us) was that in 1931, at the end of the four year period, 145 or 48 per cent complained of dysmenorrhea.

In other words the incidence of dysmenorrhea was the same before and after the four years of college life and its attendant instruction in physical education. Considering this group of 145 with dysmenorrhea in relation to posture type, we made the unexpected discovery that in 1927, 111 or 76 per cent of the women with dysmenorrhea had undesirable posture; that in 1931, four years later, 110 or 76 per cent of the women with dysmenorrhea demonstrated a desirable type of posture. A comparable increase in the desirable types of posture, at the end of the four year period was also noted in women without dysmenorrhea.

*Muscle Tonus and Dysmenorrhea*

Ever since this study began it was our feeling that muscle tonus was far more important than posture; that

posture was dependent on muscle tonus; that good posture meant good tone but that the reverse was not necessarily true. Throughout this study an effort was made to determine qualitatively and to record muscle tonus with the idea of determining what, if any, relationship existed between muscle tonus and dysmenorrhea. In this respect the study has been most disappointing; and, were it not for the fact that it has served to further emphasize muscle tonus and the need for precise measuring methods, we might also say valueless. Satisfactory grading of muscle tonus by the visual or impressionistic method is impossible. We firmly believe that, when we have arrived at a clear understanding of muscle tonus and have learned how it may be accurately measured, a revival of this study will prove of more than usual interest.

*Summary*

A consecutive four year study of young college women for the purpose of determining what, if any, relationship exists between posture and common gynecologic symptoms was undertaken. This study was begun in 1927, and the collection of data completed in 1931. Though initial examination was made of 785 young women, it was found at the end of the four-year period that there were complete consecutive four year records on only 302. Improvement in posture was demonstrated which occurred quite as consistently among those who had no dysmenorrhea at any time as it did among those with pain at each period. Whether this improvement was real or only apparent could not be positively determined. No unusual change was noted in the subjective or objective characteristics of the menstrual periods. So far as constitutional type was concerned the average nondysmenorrhaic woman was found to be slightly taller and to have more pronounced breast development.

*Conclusion*

Since we cannot be positive concerning the actual improvement in posture, any conclusions drawn from this study must be qualified. If the improvement in posture noted in this study is real, then we may conclude that:

There exists no cause and effect relationship between poor posture (based on present day standards of posture) and dysmenorrhea.

The presence of desirable posture is no indication that the individual is less likely to be afflicted with dysmenorrhea.

So far as the single symptom, menstrual discomfort, is concerned, there is nothing to indicate that good posture (based on present-day standards) is any more desirable than poor posture (also based on present-day standards).

The average woman who does not have dysmenorrhea is slightly taller and appears to have greater breast development than the average woman with dysmenorrhea.

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**Diagnosis and Treatment of Peripheral Vascular Diseases**

Mont R. Reid, M.D., Cincinnati, Ohio, in Am. J. Surg., N.S. XXIV:1:11, April, 1934.

*Therapy*

With our ability to measure the degree of vasospasm, the indications for removing it are becoming rapidly more definite, the results are improving and operations on the sympathetic nerves are being restored to favor. In Raynaud's disease and other purely vasospastic conditions excellent results are being uniformly reported following the removal of the cervicothoracic and lumbar sympathetic ganglia. When vasospasm plays a significant part in the obliterative vascular conditions, sympathetic ganglionectomy appears to be definitely indicated.

The net result of all this interest in the treatment of thromboangiitis obliterans is the general belief that this disease runs a chronic course of varying lengths of time, and then tends to stop progressing and to become healed; and that if amputation can be avoided during this time an adequate collateral circulation may develop and restore the extremities to good usefulness.

During this critical time there may be months when an amputation appears inevitable. Yet, if it can be avoided, the patients usually make a satisfactory recovery. A recognition of the seriousness of the problem and the length of time required, both on the part of the patient and the doctor, is vital in securing good results. The problem is often regarded too lightly and the patient is allowed to assume unwarranted risks of exposure, injury and infection during the active period of the disease. The time is rapidly approaching when this disease will be regarded with a seriousness akin to that of tuberculosis and when sufferers from it will not be given treatment incidental to the ordinary routine of their lives and work until threatened gangrene throws them into a hospital and makes them give their entire time to the business of avoiding amputation. With this serious attitude toward thromboangiitis obliterans and with the full utilization of the therapeutic measures at our disposal, satisfactory recoveries are frequently obtained.

We have recently adopted just as conservative an attitude and just as vigorous a treatment of the arteriosclerotic type as of any other type of peripheral vascular disease. In the literature one can find statements by Buerger and others that patients with arteriosclerosis may develop an apparent complete occlusion of the large vessels of the legs without developing intermittent claudication or other symptoms of vascular insufficiency.

Some two years ago we summarized certain facts with respect to arteriosclerotic peripheral vascular disease: (1) Cold, injury and infection often produce demands with which the reduced circulation unaided cannot cope; (2) a gradual occlusion of the peripheral vessels may be symptomless while a rapid or sudden occlusion accompanied by great vasospasm may lead to actual or threatened gangrene; (3) an affected extremity may by tests show a better circulation than the symptomless or opposite extremity. With these facts in mind, we then adopted the view that every possible effort should be made to tide arteriosclerotic cases through these critical periods of pain, threatened gangrene, real gangrene and infection in the belief that they will in time establish a circulatory balance that may be just as adequate as when a slow gradual occlusion of the vessels takes place. In the hope that we could effectively combat this temporary demand of an extremity for more blood than the vascular bed for a time can supply, we began applying for these cases the same measures which had for several years been used for thromboangiitis obliterans. Soon we were getting some encouraging results in cases in which we should previously have advised amputation. Still there were many cases which, because of their sudden and excessive demand of an extremity for blood, went on to gangrene and amputation because our therapeutic procedures could not bring about a sufficiently rapid improvement in circulation.

It is unnecessary and would be uninteresting to repeat here a description of our present machine which is on the market under the name of the "Pavaex Treatment Unit." The word "Pavaex" was selected as a contraction for "Passive vascular exercises" and is used to designate this form of therapy in contrast to the active vascular exercises of Buerger or Allen. It will suffice to say that the machine runs automatically, can be set to run any length of time desired, and is capable of producing any strength of alternating negative and positive environmental pressures as frequently as thirty times to the minute. Slight variations in the amount of negative and positive pressures are necessary for different cases. Ordinarily the selector switches are set for 80 mm. of mercury negative pressure and 20 mm. of mercury positive pressure. The average rate of alternation that we have found most beneficial is approximately one complete cycle in thirty seconds. However, with improvement in the circulation the time of the cycles may be advantageously changed to fifteen seconds. The average duration of one treatment is twenty minutes, but in severe cases of threatened gangrene, it may be necessary to give the treatment almost constantly for many hours.

It is highly important that patients with organic disease of the peripheral arteries continue to practice those measures for the general care of the feet which have been repeatedly emphasized by Allen and by Reid. The passive vascular exercises are an extremely valuable adjunct to the whole treatment which involves paying attention to many details and the use of many therapeutic measures. In our hands the Pavaex treatment has been much the most effective single stimulant to the development of a collateral circulation. In those critical periods of peripheral vascular disease in which there is a rapid or sudden threat of gangrene, it has certainly been responsible for the saving of many limbs which would otherwise have had to be amputated. Its action is much more rapid and, in addition, it does not cause the increased consumption of oxygen and increased metabolic activities incident to the use of the vascular exercises. Its usefulness is not limited to the treatment of peripheral vascular diseases. Following the ligation of a large artery or its occlusion by emboli or thrombosis, the life of an extremity may be saved by treating it with intermittent negative and positive environmental pressures. It has been used to increase the circulation in cases of chronic infection and, as originally by Bier, for arthritis and other conditions.

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## Acute Back Injuries

Willis W. Lasher, M.D., F.A.C.S., New York, in The Am. J. Surg., XXIII:2:297, February, 1934.

### *Treatment*

Strapping: An acute sprain should be strapped immediately with adhesive plaster. Two to three inch strips should be used and applied transversely across the back, extending from the vertical extension of one anterior iliac spine to a similar line on the opposite side, beginning at the level of the middle of the sacrum and continuing to the ninth dorsal vertebra, thus including the lower ribs. The strapping must be applied with force, and the lower strips should be made to firmly grasp the anterior superior spine and crests of the ilia. Should these lower strips slacken following the application of the upper ones, additional strips should be applied over them to firmly fix the sacrum and lower spine. The patient should be in the prone position during this procedure and should be lifted bodily from the table and placed upon his feet at its completion in order not to derange the strapping. Where there has been a true sprain of the muscles of the back, immediate relief is invariably obtained. After five to seven days the strapping is usually no longer required. A few cases have to be restrapped. In 99 cases of our series, this was our primary treatment.

Massage and Exercise: Deep massage should be ordered for the patient following removal of the adhesive strapping, and he should be instructed to carry out voluntary exercises. These should be executed in the presence of a competent physiotherapist.

In our series 115 patients were treated by this method and the majority were cured within two weeks.

Baking and Diathermia: Although there are some who believe massage can be carried out better after the patient has been exposed to heat, I believe baking forms a very small part of the benefits derived from physiotherapy. Both the infra-red and the usual baking lamp were used in our series and though quite a number of patients stated that they had received decided temporary relief following the application of heat, there was a definite group who complained that the heat aggravated rather than diminished their symptoms.

Diathermia is widely used and favorably advocated by a large number of eminent physiotherapists, but its use in this series of cases did not appear to lessen the disability period as compared with the cases treated solely with deep massage and corrective exercises.

Rest period and type of bed: Where the condition is acute and very disabling, it is advisable to begin treatment with a period of one to three weeks' rest in bed, preferably in a hospital. If the patient must be treated at home, his bed should be fitted with a hard mattress and spring and if this fails to give the proper support, a board should be passed beneath the springs to support them. Only a very small pillow should be permitted.

Belts: The use of a belt tends to weaken the muscles supported by it, and assuming the majority of back injuries to be a "myofascitis," as described by Albee, a period ot immobilization longer than that afforded by strapping would seem to be contraindicated.

We found that the use of a belt reduced the patient's self reliance, prolonged the disability period and tended to make the patient an habitual belt wearer. Therefore, the cost of supplying the patient with a belt can hardly be justified.

Colonic irrigation: Intestinal stasis unquestionably has a direct bearing on the metabolism of the back muscles, and pain from this cause would probably be relieved by colonic irrigations. However, I do not believe this condition causes extension of symptoms in back injuries. None of the cases in this series was treated with colonic irrigations because in another series in which they were used most of the patients objected to the irrigations.

Manipulation: Manipulation of the spine under a deep general anesthesia, followed by rest for a few days, is advocated by Moorhead and others in chronic conditions in which the types of treatment already mentioned have failed. This procedure, in my opinion, is not applicable to very recent back injuries, as if there be an acute inflammation of any joints, associated with the muscular involvement, forceful manipulation would tend to further irritate the synovial membrane. It seems that the beneficial results which are sometimes obtained should be attributed to the stretching of muscles rather than to the breaking up of adhesions.

XUM

## Histamine Therapy of Rheumatic Affections and Disturbances of the Peripheral Circulation

David H. Kling, M.D., New York City, in Ann. Surg., 99:4:568, April, 1934.

*Technic of the Histamine Application*

(a) Cataphoresis.—Deutsch devised for this purpose a special galvanic apparatus and used leaf impregnated with histamine in conjunction with it. This outfit, called Katexon and Katexon leaf, is not yet available here. The following technic was, therefore, adapted. A reliable galvanic apparatus equipped with an accurate milliameter supplies the electric energy. For electrodes aluminum or lead leaf is used. Filter paper or gauze is moistened with a solution of histamine acid phosphate of 1 to 1000, dissolved in 0.1 per cent chloretone for preservation. The affected part is covered by the filter paper, over which the positive electrode is adjusted and secured with rubber bandages. On account of the danger of producing burns, care must be taken so that the electrode should not touch the bare skin and all metal should be removed from the vicinity of the current. A very convenient negative electrode consists of a non-metal basin filled with the weak saline solution. A strip of lead leaf connected with the positive pole is adapted to the bottom of the basin and covered with a rubber sheet. One hand is submersed in the basin of saline. The current is slowly built up from four to eight milliamperes, allowing about one milliampere to the square inch of positive electrode. It is permitted to act from one to two minutes.

In the majority of cases, no more than a prickling sensation is felt over the treated part. The current is gradually decreased; contact should not be interrupted suddenly.

The sequence of effects of the histamine cataphoresis was studied on patients and in self experiments: The exposed skin appears reddened immediately after removal of the positive electrode. Soon wheals crop up and blend into one patch of urticaria, which stands out whitish from the surrounding erythema. The temperature over the treated parts is raised from 2 to 3 C. Gradually, the elevation of the skin recedes, leaving red spots. The skin does not return to its normal appearance before five or six hours.

(b) A modification of the histamine cataphoresis was recently published by Bettmann.

A non-metallic (glass, enamel) is filled with a 1 to 10,000 solution of histamine and connected with the positive electrode and insulated by covering it with rubber sheet. The affected extremity is submersed in the histamine solution. The negative electrode is wrapped in insulating material (linen, towels or rubber) and applied as a cuff above the treated part. The current is permitted to act for five to ten minutes. This method is very convenient in affections of the hand and foot. Drawbacks are the large amounts of fluid necessary and frequent renewal as the solution deteriorates in from one to three days. The reaction, also, is not so strong as with the former method.

Myalgia (Myositis).—Only twenty cases of myalgia of my own observation can be presented here. Duration of the symptoms amounted from one week to two years; the age ranged from twenty-eight years to sixty-seven years. Previous treatment was given without success in eight cases, and consisted of baking and massage and diathermia. The muscles of the shoulder were affected in fifteen, of the arm in two, of the forearm, neck and calf in one case each. Cure or improvement was achieved in eighteen (90 per cent); two cases remained unrelieved. No other treatment was given during the histamine therapy. The results are in good agreement with these published by the other authors which reported success in 90 to 95 per cent.

The effect of the treatment is very striking. Immediately after the very first application, pain and tenderness disappear and motion is increased. In case this initial effect is not pronounced, the final outcome must be viewed with skepticism. This analgesic effect remains first for several hours, corresponding to the changes in the circulation described above. The treatment is therefore repeated at first daily if possible; with the progress of the recovery, the painless intervals increase up to twenty-four to forty-eight hours. Treatment is now continued every second to third day, until all symptoms have disappeared. The number of treatments required varies from three up to twenty. In severe and chronic cases one is justified to continue as long as there is good immediate response to the treatment.

Muscle Affections Following Trauma, Static Strain or Disease of Bone and Joints.—In three cases of calcified subacromial bursae, verified by roentgenograms, I have seen disappearance of pain, tenderness and return of complete motion after three to six treatments.

Arthritis.—I have under treatment a number of cases of osteoarthritis and of rheumatoid (atrophic) arthritis. In some cases of the former, I have noticed a decrease of hypersensitivity and stiffness. In the second group some improvement in motion and decrease of pain occurred after treatment. However, prolonged observation in a large number of cases is necessary for definite conclusion in this eminently chronic group of affections.

Neuralgia.—Out of thirty-two cases of neuralgia, twenty-three were reported improved.

Acroparesthesia.—I have a series of cases under treatment in women of middle age, complaining of numbness, hypersensitivity and paresthesias. To date I have not seen any marked influence, but in these long-standing disturbances the treatment should be continued for a considerable length of time.

*Summary and Conclusions*

The application of histamine either by cataphoresis or by the scratch method is presented.

Alteration of the peripheral circulation is the principle underlying the treatment of rheumatic conditions and disturbances of the vasomotor system, by the application of histamine to the affected parts.

The effect of this treatment consists in a dilatation of the minute vessels and smaller arterioles; in an increase of the blood flow and permeability of the vessels, which causes a hyperemia and elevation of the skin temperature of several hours' duration. Some evidence is given of a longer duration of the capillary dilatation after considerable treatment. (Bettmann.)

The result in 554 cases collected from the literature are surveyed.

A definite conclusion of the value of this method is at present possible only in myalgia (myositis). Out of 361 cases, 301 were either cured or improved; recurrences were noted in twenty-six cases.

Twenty cases of myalgia of my own observation are analyzed. Of these eighteen were cured or improved, two remained unchanged.

Immediate relief of pain and tenderness after the first treatment is of favorable prognostic significance in this group.

Thorough examination and treatment of all affected

muscles and their antagonists are decisive for the success of the treatment.

The material is insufficient in the other conditions to draw definite conclusion.

Secondary myalgia, after trauma, strain and due to static unbalance was benefited in a moderate number of cases.

Three cases of calcified subacromial bursa were successfully treated by me.

A prolonged study in a large series of different types of arthritis is being undertaken, first, to determine the role of the alteration of the peripheral circulation; and secondly, to study the eventual therapeutic effect of the histamine by itself or in conjunction with other therapy.

Finally, the effect of the histamine treatment on disturbances of the peripheral circulation (Raynaud, Buerger, and arteriosclerotic conditions and acroparesthesia), is under investigation.

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## Effect of Diathermy Treatment of Kidneys on the Renal Function

*As Measured by the Urea Clearance Test.*

Irvine H. Page, M.D., New York, in J.A.M.A., 102: 14:1131, April 7, 1934.

Contradictory literature has grown up regarding the observed effects of renal diathermy. Some investigators have found neither a diuretic effect nor any evident therapeutic advantage, whereas others have stated that they have had good results.

In order to obtain evidence concerning the effects of diathermy on renal function I have observed the effect of one-hour periods of diathermy on the urea clearance. The subjects were either normal or those suffering from hemorrhagic Bright's disease, nephrosis, or essential hypertension.

In all cases the blood urea was not changed to any large extent, there being a slight tendency to fall from the first period to the last. Also, no consistent change in the water excretion was noted, and, lastly, the urea clearance was not altered significantly. Blood pressure measurements during the diathermy treatment showed no consistent change from the control level.

*Summary*

Diathermy treatment has been given to fourteen subjects (normal subjects and patients with hemorrhagic Bright's disease, nephrosis and essential hypertension) for one-hour periods. No significant change was observed in the blood pressure or in the renal function as measured by urea clearance test, diuresis or blood urea. The results afford no support for the assumption that renal diathermy is of therapeutic value in essential hypertension or Bright's disease.

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## The Effects of Immobilization on Normal Bone

Francis M. Conway, M. D., and John J. Stubenbord, 3d, M.D., Douglaston, New York, in J. Bone & Joint Surg., XVI:2:298, April, 1934.

At the present time there is, at best, a vague knowledge concerning the effect of immobilization on the growth of healthy, uninjured bone. According to Wolff's law, "All changes in the function of a bone are attended by definite alteration in their internal structure," one would expect atrophy of the part through disuse.

As we thought over the problem the following question presented itself: Would normal, healthy, uninjured bone show signs of atrophy of disuse as demonstrated in a roentgenogram?

We tried to minimize variables associated with the taking of the roentgenograms, and the same machine was used, when possible. The voltage, spark gap, time exposure, were all constant. The distance between the part and the tube was measured exactly for each film and the same technician took all the films.

*Conclusion*

In the absence of injury there are no signs of atrophy in normal, healthy bones through disuse per se during a period ranging up to three weeks, so far as may be observed from the roentgenograms.

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## The Treatment of Erysipelas in Children—A Comparative Study Showing That Best Results Are Obtained With the Use of Ultraviolet Radiation

Louis M. Nightingale, M.D., and Saul Starr, M.D., Brooklyn, in J.A.M.A., 102:10:761, March 10, 1934.

*Method of Study*

Since November 1932 we have treated with ultraviolet rays fifty-one children under 12 years of age with erysipelas; of these, twenty-three were infants under 1 year of age. Four infants and one older child also received serum therapy; of these five, three died. These patients were treated early in our work when we had less confidence in ultraviolet irradiation; rather than make a separate classification of these five cases, we have added them to both the ultraviolet and serum treated cases.

For comparison, we have reviewed all the pediatric admissions since January 1929. In all there were 130 patients with erysipelas; of these, 101 received serum treatment alone and 16 received local treatment, the remainder receiving various forms of treatment.

Such a division of cases as in table 2 makes the groups too small for a comparative study of all the methods of treatment. We have therefore compared our ultraviolet group with the results in the 101 serum-treated cases. Considering the fact that serum treatment has given perhaps better results than all previous forms of therapy, and certainly better than simply local applications, results that are as good or better than with serum treatment will establish the efficacy of ultraviolet therapy.

*Technic of Therapy*

The serum-treated patients received various commercial antiserums in dosage as suggested by Symmers. On admission, each patient received 10 cc. of serum intramuscularly; this dose was repeated every twelve to twenty-four hours until the disease was under control. An average of four ampules of serum per patient was used. Most of the group were also given wet magnesium sulphate dressings locally over the erysipelatous area.

Early in our study the ultraviolet therapy was much as that suggested by Ude and Platou. As soon as admitted, the child received a single dose of ultraviolet radiation—about one and a half erythema doses for the older children, slightly less for the infants. The ultraviolet rays were directed to an area extending from 1 to 2 inches beyond the spreading border, the burner being set 10 inches from the patient. If the area could be exposed only from two directions, the overlapping was permitted.

However, we soon noticed that, especially in the infants, the dose of ultraviolet radiation had to be repeated frequently for continued spread of the lesion and

persistence of a high temperature. Our routine was then changed to three doses of one and a half erythema doses on successive days, regardless of the clinical course. Rarely did we have to repeat the ultraviolet irradiations. We saw no ill results from the treatment in our entire series.

In many of the infants treated wtih ultraviolet rays early in our series, transfusion was performed, especially if complications were present. However, seeing no particular benefit in these complicated cases and finding that in most of our uncomplicated cases recovery occurred without transfusion, we discontinued it as a routine procedure.

*Summary*

Ultraviolet therapy alone gives better results in both infants and older children than does serum therapy.

As with serum, the earlier ultraviolet therapy is given, the better will be the results.

There was no difference in severity observed between the facial and body type of erysipelas, except that the genital type was usually severe.

Translating our figures into more graphic statements we find:

A. In older children,

(a) Death was almost nil in previously healthy children over 2 years of age, and when it occurred it was due to complicating features such as mongolism, pneumonia and the like,

(b) The child is sick about six and a half days but if treated within twenty-four hours of onset is ill only four and a half days (three and a half days after treatment).

B. In infants,

(a) One out of five die despite early treatment for an uncomplicated erysipelas; if not treated early, one out of three die.

(b) The presence or appearance of a complicating feature, such as pneumonia, mastoiditis, gastro-enteritis, jaundice, spells almost certain death. Local abscesses are much less important.

*Conclusion*

Ultraviolet therapy to date has been (a) most successful, (b) least dangerous, and (c) least expensive.

On this basis, ultraviolet irradiation should be put above serum therapy in the treatment of erysipelas.

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## Physical Therapy in the Chronic Invalid

I. M. Leavy, M.D., Montefiore Hospital, New York, in N. Y. State J. M., 34:9:405, May 1, 1934.

It is obvious that for the present we cannot expect cures in patients with chronic diseases, for to accomplish this end there would be an elimination of all chronic diseases. However, we can bring about a better effect and results in a vast majority of patients afflicted with chronic disease with physical therapy in its constant proper application, aside from advanced progressive diseases and such conditions as malignancy, pulmonary tuberculosis, and mental diseases. These diseases, requiring special consideration and including others that are amenable to x-ray, radium and surgical physical therapy will be omitted. We may classify our results from physical therapy in chronic diseases as: (1) alleviation; (2) improvement; (3) partial restitution. One or all of these may be rendered in the same patient with the proper association of technic and modalities.

Ultraviolet irradiation, both local and general, has a definite place in the treatment of certain chronic conditions because of its effect on the blood pictures with the increase of red blood cells, white blood cells and hemoglobin and other constituents of blood, including the activation of vitamin D and increase of body calcium and phosphorus. Many patients with diseases accompanied with cachexia, inanition, avitaminosis, secondary anemia (such as accompany extrapulmonary tuberculosis) will show marked benefit by general body irradiation over a period of from one to three months. The systematic application of ultraviolet rays will enhance the effects with the administration of iron in secondary anemia, and liver in pernicious anemia.

It may be safely said that general body exposure to ultraviolet irradiations is indicated in all cases of chronic bone and joint diseases.

Locally, in the air-cooled, water-cooled or cold quartz burners and electrodes we have an efficient means for the treatment of indolent ulcers of the skin or mucous membrane, recent draining sinuses, and decubitus, so common in chronic diseases of neurologic origin. These are also applicable to certain resistant chronic skin diseases. Ultraviolet irradiation is not well tolerated by the aged and advanced cardiac diseases, particularly with marked decompensation; also in neuroses; and in diseases with severe cachexia, inanition, diabetes mellitus, and such skin diseases as eczema, psoriasis, and lupus erythematosus.

Low voltage currents in the form of galvanism, faradism, and sinusoidal, find a ready indication in paralyzed or paretic muscles, due to upper- or lower-neuron involvement or of traumatic origin. They give neurogenic nutrition and power of contractility to those muscles which may or may not, undergo atrophy from disuse. The tonus of muscles will be either maintained or increased by the simple contractions by the current and produce mild heat and increased metabolism.

In combination with other measures, it will influence the effect on paraplegia of myelitis, neuritis, peripheral vascular and vasomotor changes, and atony of the abdominal wall and intestinal tract. It should be avoided in myasthenia gravis, neuritis with acute exacerbation, and it should never be applied in the region of the precordium.

For the physical therapeutic treatment of chronic diseases, we rely especially on the important standard trio of physical therapeutic measures which are usually combined in their applications, namely, heat, massage and exercise. Whatever objections there may be by medical men for instituting physical therapy, these three modalities are rarely ever interdicted. They lend themselves with advantage to the vast number of chronic diseases, and when given properly are almost free of all hazard.

Heat may be applied locally to the articular or periarticular diseases, neuritis, myositis, muscle spasm, and contractures. General body exposure to heat may be given in multiple arthritis, renal disease for elimination, neuroses, and many of the cerebrospinal cord diseases, especially those involving the pyramidal tracts. Heat should always precede massage and therapeutic exercise, as its application with relaxation, and increased blood supply will enhance their effect and increase the tolerance of the patient. Careful consideration must be given to those patients with sensory disturbances. The mode of heat application is extremely varied, and one makes his preference according to the best results he can obtain.

Hydrotherapy continues to be in favor with many, regardless of the great advance in the electrical apparatus, such as dry-air heaters, light cabinets, diathermia, and radiothermy. Tepid baths of 85 to 95 F. are useful

in neuroses, myocarditis, nephritis, spastic or flaccid paralysis, paraplegias, with or without impairment of the sphincters, cerebrospinal cord tumors, multiple sclerosis, dystonias, and myatonias. It often gives results in the chronic cardiovascular diseases that are not too severely decompensated and may be administered with carbon dioxide or the simple modified Nauheim bath.

Hot baths of 95 to 110 F. are indicated in chronic inflammation of the bones, joints and muscles, and are particularly well tolerated by and greatly benefit, those patients with chronic multiple arthritis, both the proliferative and degenerative types. It not only permits greater mobility of the affected joints with less discomfort, but serves to minimize the development of contractures. For the same reasons and in addition for the relief of pain and crises, it may be administered often with gratifying results in manifestations resulting from cerebrospinal syphilis.

Hot sitz baths are also given for sedative effect in conditions involving the genitals, lower pelvis, and rectum, including cystitis, urethritis, and prostatitis.

The advent of the use of diathermia in physical therapy presents an effective agent for the application of heat to the very deep structures. It has added to our facilities and increased beneficial results in our treatment of chronic diseases.

Because it increases blood and lymph supply to the part and dilatation of the vessels, its sedative action on sensory and motor nerves, it produces relaxation, increased nutrition, and absorption of exudates. Locally it is efficacious wherever heat is indicated, as in arthritides, articular and periarticular, spinal cord diseases, neuritis and neuralgias, angina pectoris and coronary disease, ununited fractures, fibrous ankylosis, peripheral vascular diseases, synovitis, and myositis. In the form of autocondensation, it is palliative in all types of hypertension and may be the means of averting many cases of cerebral apoplexy. Excessive heat is not well tolerated in cardiac and pulmonary diseases and aged; also in peripheral vascular diseases, vasomotor and sensory paralysis, hypertension, aneurism and functional neurosis.

As many of the chronically ill patients are confined to a sedentary existence, massage is the substitute for the activity to which they at one time have been accustomed. One of the purposes of massage is to prepare these patients for therapeutic exercises. Massage is to be avoided in phlebitis and thrombosis, chronic ulcerative colitis, purulent infections (osteomyeltis).

Exercises are usually first given in conjunction with thermotherapy and massage in the form of passive, assistive, and resistive movements, and finally the active exercises which are so essential for some degree of restitution. The early movements are performed by and with the attendant, who should have a thorough knowledge of the movements of each joint. This will prepare the muscles for future voluntary activity, increase mobility, prevent contractures, and counteract deformities.

Most of the chronic patients have a low metabolic rate (unlike the acute, which have an increased metabolic rate). This may be increased by massage and exercise.

These exercises may be first given in bed and the early active exercises to the upper extremities given to these patients in the wheel chair. Following this, the patient may be supported on walking chair or crutches and begin the rudimentary action of standing and walking. The necessity of proper instructions in standing and walking is essential, as they will tend to make any form of movement, though ungainly, that will require the least effort in propulsion. In institutions with mechanotherapy equipment, there is the advantage in having a class of patients performing exercises which keep their incentive and interest maintained.

Prolonged exercises are to be avoided, as patients with chronic diseases are readily exhausted with a tendency to nervousness and excitement. Strenuous exercises are also to be guarded against in overstretched muscles.

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### Fever Therapy

Section on Physical Therapy, Penna. M. J., XXXVII: 8:678, May, 1934.

There has been a growing interest, on the part of physicians practicing therapy, in the treatment of disease by the use of artificial fever, produced by physical means. On April 27, 1934, a group of prominent physicians met at Columbia Medical Center, New York City, for the Fourth Annual Fever Conference. Much interesting data should come from this conference.

It now seems certain that fever produced by physical means is a safe measure and that it holds promise of being a valuable procedure in the treatment of certain chronic diseases. The trend is away from the production of fever by high frequency currents, either by diathermy or short radio waves and toward the production of fever by means of heated cabinets of various types.

There are several types of cabinets now in use, all of which will produce fevers. Among these may be mentioned the light cabinet used by Dr. Stafford L. Warren; the cabinet containing heat elements in its base; the cabinet which contains a mistlike hot water spray; and finally the air-conditioned cabinet developed by Dr. William Simpson. The latter two are particularly satisfactory for fever therapy work. The nebulized spray cabinet is the most pleasant method of producing fevers. The air-conditioned cabinet is most satisfactory for producing prolonged high fevers. It is quite easy with this device to maintain the temperature routinely at 106 F. for five hours.

Like all new methods of treatment, artificial fever therapy is being recommended for a multitude of diseases. These include cerebrospinal syphilis, gonorrheal arthritis, chronic pelvic inflammatory disease, rheumatoid arthritis, multiple sclerosis, bronchial asthma, chorea, Parkinson's syndrome (post-encephalitis), etc. It is extremely unlikely that fever therapy produced by physical means will prove of value in all these conditions; nevertheless, the careful scientific investigations now being conducted in this field will disclose, within the next year or two, the exact sphere of usefulness of this new method of treatment. It appears to have considerable promise.

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### Physiologic Effects of Diathermy Current

Sec. on Physical Therapy, Penna. M. J., XXXVII:8: 678, May 1934.

Claude Saberton, in Diathermy in Medical and Surgical Practice, claims that the artificial general pyrexia resulting from diathermy treatment differs from ordinary pyrexia in that it is not produced by toxins circulating in the blood. After cessation of the treatment, the heat regulating mechanism quickly eliminates the excess of heat, and the temperature returns to normal. Certain tissues, however, such as the bones of the wrist

joint, which readily become heated in hand-to-hand diathermy, retain their heat for a considerable time, and give it up slowly to the circulating fluids of the body.

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## Physical Therapy in Infantile Paralysis

C. O. Molander. M.D., Chicago, in Arch. Physical Therapy XV:2:90, February, 1934.

### *Convalescent Stage*

The third or convalescent stage begins when the sensitive stage is over. It lasts from nine months to one year, and sometimes longer. It is during that period that the muscles make their greatest gain in power, and active muscle training should be carried out faithfully.

The chief objectives of this stage are:

1. Complete muscle examination to show the extent of paralysis and the comparative strength of the muscle groups.
2. To simulate circulation and increase nutrition.
3. To watch for and prevent deformity.
4. To promote relaxation and rest.
5. To protect muscles from overstretching.
6. To prevent contractures.
7. To favor the more important muscles until their recovery is assured.
8. To re-educate and strengthen the muscles by means of suitable exercise.
9. To be watchful of the general condition of the patient.

Heat and massage are given to prepare the patient for the exercise program, as muscles respond more readily to exercise when local temperature is increased. Heat is applied to the point of erythema; usually a greater amount of dry heat can be tolerated. There are three types of heat, moist, dry and diathermy. Diathermy takes much more time, there is danger of burns, especially in small children, and there is very little advantage to be gained by its use. Radiant light is the one of choice. Moist heat, except in the hydrogymnastic pool, would be difficult to apply at this stage.

The application of heat is followed by massage, the chief purpose of which is to improve muscle tone, antagonize muscle atrophy, stimulate local circulation, thereby increasing the flow of blood and lymph to paralyzed parts, preventing adhesions in muscles not usually active, eliminating waste products and stimulating nutrition, without fatiguing the muscles.

The kind of massage and technic of its application are of importance. At first the stroking should be very light, and later, petrissage or lifting of muscle from bone, rather than flattening against it should be employed, with just enough pressure to quicken circulation, together with a light friction around contractures, plus a definite, careful stretching of contracted tendons. Hoffa's technic is the one we use, the individual muscle groups being taken separately, and massage following the direction of muscle fibers with the stroke always continuous and upward from the distal to the proximal end. The direction is always with the venous circulation and never against it. Massage is contraindicated in the tender stage. Too deep stroking may cause paralytic dilatation of the vessels and defeat our purpose.

Electricity. There is a great difference of opinion in respect to the use of electricity. Generally, the use of galvanic current is of no value whatever in increasing muscular strength. Faradism, though causing a contraction of the muscles is very uncomfortable to children. The painful element, however, is much diminished by the use of the Smart Bristow coil, which is faradism used in conjunction with a condenser. The weak point of this, however, is that it is difficult to confine the treatment to any one muscle, for the current spreads.

The rational use of electrical stimulation is based upon the following considerations: if the muscle is not fully paralyzed, but only weak, the production of contractions not only prevents atrophy of the paralyzed muscle bundles, but also exercises and strengthens the non-paralyzed part and thus enables it to do compensating work. In fully paralyzed muscles, electrical stimulation can cause movement similar to the normal ones, thus tending to preserve the functional properties of the muscle until normal nerve impulse returns to carry on the work. Sometimes even in older cases the improvement is very sudden.

Electrical stimulation by means of the galvanic or faradic current is given for its mechanical effect, which causes a contraction of the muscle fibers. The muscles in a case of infantile paralysis are atrophied and therefore fatigue easily, because there is a partial or complete blocking of the motor pathway and impulses which maintain tone. Nutrition and muscular contraction cannot get through at all or very incompletely.

There is no evidence that any form of electrical stimulation can prevent atrophy and maintain tone and nutrition. However, clinical evidence seems to indicate that in the hands of the experienced, a mild sinusoidal current, just enough to cause a contraction, given to the point of fatigue, or the slowing of contraction, will preserve the functional properties of muscles until normal impulses return. Electrical stimulation should be abandoned as soon as there is a return of power.

### *Muscle Training*

As muscle training forms the basis of treatment in this stage and the following one, it is important to give this phase thorough consideration. Muscle re-education is that form of therapeutic exercise in which neuromuscular co-ordination has in some way become partially destroyed. The reflex arc has become involved making it impossible for the muscles to move by means of the reflex mechanism. As a result, co-ordinated movement is lost. To re-educate muscles under such conditions two things are necessary: First, to re-establish a better co-ordination between the remaining nerve fibers and cells supplying the affected muscle, and, second, to secure the contraction of the desired muscle, however feeble.

However, before starting muscle training, it is of importance to grade the muscles which are paralyzed in order that the exercises may be properly controlled and located. If this is not done the patient is sure to use the strong muscles instead of the weak ones. On examination some muscles will be found weakened, some paralyzed and some comparatively normal.

Under-Water Exercises.—The Hubbard Tank or under-water gymnasium constitutes one of the most important means of muscle training in the treatment of infantile paralysis. The warm water improves the circulation of paralyzed muscles, and the buoyancy of the water aids in the active movements of the extremities. It is readily seen that the three forms of exercise, assistive, free and resistive can be carried out more easily in the water than in any other manner. For example, in assistive work, the buoyancy of the water lifts the limbs to the surface. In free exercise, the part is placed on the surface of the water and here again the buoyancy of the water makes free movement possible in a horizontal plane. Lastly, in resistive work, the extremity is moved against the water, from the surface to the deeper part.

### Physical Treatment and Tests in Pulmonary Tuberculosis

Frederick Heaf, B. A., M.D., Medical Supt., Colindale Hospital; in The Practitioner, CXXXII:2:236, February, 1934.

Exercise tests.—The immediate sensitiveness of a tuberculous subject to the stimulation of the lesion by exercise is demonstrated by a rise in temperature and pulse. This phenomenon can be used to indicate the progress of the patient and gives an estimate of the degree of activity of the lesion. A prescribed amount of exercise is given to the patient and the reaction of the body noted by frequent periodical readings of the temperature and pulse rate. Naturally, it is desirable to apply the test to non-febrile cases only, and never to those with a temperature above normal. In order to avoid a severe reaction, two or three tests can be devised of varying amounts of exercise. As it is essential that the amount of work expended by all patients shall be constant in any particular series of tests, so that results may be comparable, walking is the best form to use. I have tried a stationary bicycle in the form of exercise of an ergometer, but it is very difficult with such a machine to keep the amount of work done by different patients within comparable limits. In the 500 cases thus tested, I have come to the conclusion that instructing the patient to walk a given distance during a certain period of time which conforms to the rate of four miles an hour, gives the most reliable results. It is usually sufficient to have three classes of tests: (1) half a mile in 7½ minutes; (2) two miles in half an hour (3) four miles in one hour. If no abnormality is noticed after the first test, the second can be done on the next day, and likewise the third on the following day if there is no reaction from the second.

Method of application of the tests.—The test is applied as follows: The patient must rest, preferably lying down for fifteen minutes, during the last five minutes of which his temperature and pulse are taken. He then goes for a walk which should be over as level ground as possible, and on his return he must lie down in a moderately warm room so that there is not any discomfort from the cold. His temperature and pulse are taken immediately, and again every five minutes for one hour, and charted in the usual way. Rectal temperatures give the most accurate records, but there are obvious difficulties in taking them. Readings taken in the mouth are found to be quite satisfactory provided the patient is instructed to breathe through the nose, particularly during the first fifteen minutes after his return from the walk. In patients with dyspnoea this is difficult after the exercise, and a very low reading may be charted. In the normal individual the temperature will not rise above ten beats per minute. If an increase does occur, it should return to normal after ten minutes rest.

To obtain comparable results the test should be performed when the patient is free from minor complications such as a "cold" or slight dyspepsia or any other transient disability. The atmospheric temperature affects the result, and as far as possible the test should be given when the weather is calm and fine. A hot day will cause an abnormal rise in the patient's temperature, and inclement weather will probably mean the performance of a much greater amount of work than under good conditions. On the other hand, in very cold weather the walk is apt to be done quicker, and the respiratory rate is raised, which makes it difficult to obtain accurate temperature readings during the first ten minutes owing to the patient's tendency to breathe through his mouth. It is therefore desirable that the test should be carried out when the shade temperature of the atmosphere is between 45 and 65 degrees F., which means in the early forenoon in summer and the early afternoon in winter. The test can be carried out quite easily from any consulting room, the physician having previously decided upon a suitable two-mile or four-mile walk in the neighborhood.

Classifications of results.—Abnormal charts fall into four main classes: (1) The subnormal temperature with little variation throughout the whole hour, the pulse showing a rather rapid rise which falls very slowly. This type is usually produced by cases with chronic bronchitis with little or no tuberculous activity; (2) The temperature and pulse rise immediately after the exercise, but fall again so that both are normal in about thirty minutes. This shows that this type usually has a good prognosis provided treatment can be continued for a considerable period. The disease is not very active and will tend towards an arrested condition. (3) The temperature falls and then rises steadily after about fifteen minutes. The pulse meanwhile rises, at first fairly rapidly and then keeps a fairly constant high rate. This type has not such a favorable outlook as No. 2, and generally requires special treatment as well as a considerable rest period in bed to obtain a good result. The initial fall of temperature is probably due to fatigue. (4) Both temperature and pulse rise continuously for about ten to fifteen minutes and then may fall slightly. This is a bad type of result, and such cases require very prolonged rest in bed with special treatment after the resistance against the infection has been built up by this period of physical inactivity.

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### Some Problems Frequently Encountered in the Treatment of Recent Fractures

H. Earle Conwell, M. D., in N.E.J.M., 210:10:522, March 8, 1934.

Physical therapy is essential in all fractures, not necessarily and entirely machine therapy, such as diathermy, but the use of the simple physical resources such as hot water and ordinary heat and lights.

Too prolonged fixation is a very disabling procedure. It is not conducive for early function. Early active motion used by the patient is one of the most important procedures in accomplishing good functional results. Hot and cold contrast baths are to be used when sufficient callus formation has taken place to allow the temporary removal of any fixation from the involved part. Massage and other forms of physiotherapy when accessible are of great help. All of these procedures should be under the direct supervision of the doctor treating the case, and when possible in co-operation with a capable physical therapist of the medical profession.

In fractures with skeletal traction or a Thomas splint some form of radiant heat is useful, and the patient can often be instructed to give himself some superficial massage. The co-operation of nursing in physical therapy is essential. In hospitals where there are physiotherapy departments, the patient often gets the impression that all he must do to obtain function is to visit this department once daily. This of course is a tragic development.

The splinting in physical therapy is too frequently overlooked. In a stiff shoulder with a weak deltoid and contracted pectoralis major, no physical therapy will produce function by an hour's treatment if the arm is allowed to hang for twenty-three hours instead of being in an aeroplane splint.

One of the most important physical agents to use in fractures is exercise. The muscles of the body are

expected to work together in the co-ordinative movements which we use in our ordinary daily work and they will work together longer when there is a purposeful nature in the exercise. Therefore, curative occupational therapy is probably the best exercise and is of the greatest value. Even without expert directions the surgeon can with a little ingenuity use occupational therapy.

## Book Review

*ESSENTIALS OF MEDICAL ELECTRICITY. By Elkin P. Cumberbatch, M.A., B.M. (Oxon.), D.M. R.E. (Camb.), M.R.C.P., Medical Officer in Charge, Electrical Department and Lecturer on Medical Electricity, St. Bartholomew's Hospital, etc. Seventh edition, cloth pp. 508 with 15 plates and 132 illustrations. Price 10/6 London, Henry Kimpton, 1933.*

The first edition of this book was published in 1905. As this is the seventh edition, the volume must have had a popular appeal. As a reference book on medical electricity, it is passable. The descriptions of the technics of electrotherapy are well written and it has an excellent index. The red cloth binding is poor.

It cannot be recommended as a practical reference book for the technician. In the chapter on electrical treatment, there are recorded many questionable statements. For example, in episcleritis, it is stated that this disease may be treated by salicylic iontophoresis. Under exophthalmic goiter, it is noted that Cardew recommended passing constant current through the thyroid gland. In this alphabetical list of symptoms and diseases beginning with acne and ending with xanthelasma palpebrarum, no attempt is made to critically evaluate the treatment proposed; only opinions are given. It is regretted that controlled observations and critical data obtained by careful investigations carried out on a group of patients are not presented. Statements that symptoms of locomotor ataxia can be relieved by the application of the constant current to the spine and that Leduc recommended the introduction of chlorine ions as a method of treating pleural adhesions, might well be checked and revaluated.

## Physical Therapy Session to Be Held in Philadelphia

The thirteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held in Philadelphia at the Bellevue Stratford, September 10, 11, 12, 13, 1934.

This year's session will be especially noteworthy because of the excellent program which has been arranged. Outstanding clinicians and teachers will present the results of the newer researches in the field emphasizing short wave therapy, hyperpyrexia, light therapy, remedial exercise, massage and other interesting subjects.

On Wednesday evening, September 12th, a joint session will be held with the Philadelphia County Medical Society.

Special features will be the scientific and technical exhibits and the small group conferences. The latter have been arranged for Tuesday morning. Every specialty of medicine and surgery will be represented. The technical application of physical measures will be demonstrated and the fundamentals emphasized. The general sessions will be taken up with symposia on cancer, arthritis, poliomyelitis, industrial surgery, etc.

Friday, September 14, has been set aside for hospital teaching clinics which will be held in the leading institutions of Philadelphia.

You should plan now to attend this very important medical gathering. Physicians and their technicians, properly vouched for, are eligible to attend.

Send for preliminary program. Address American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

## We Are Sorry!

The notice "Concerning Films" written in May-June issue of the PHYSIOTHERAPY REVIEW, should be signed, Florence Kenney, Harvard Infantile Paralysis Commission. (Not Children's Hospital.)


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